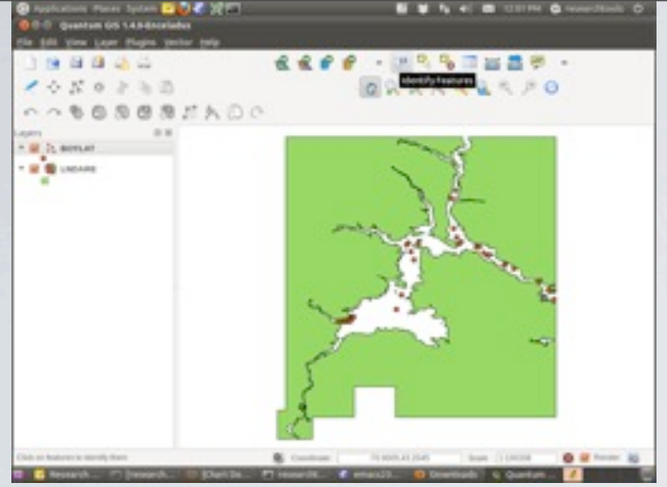
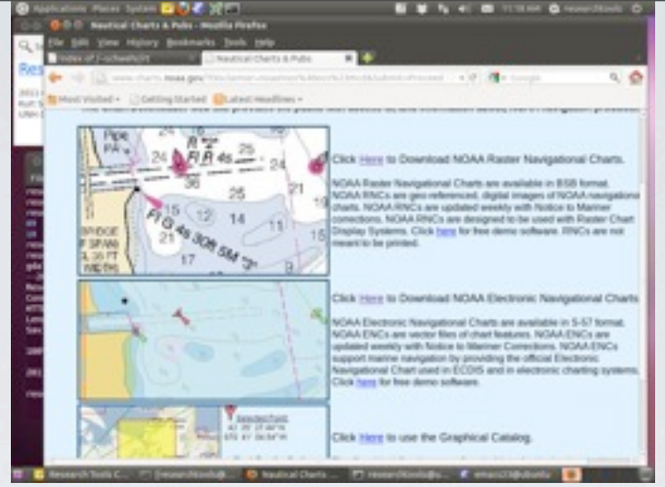
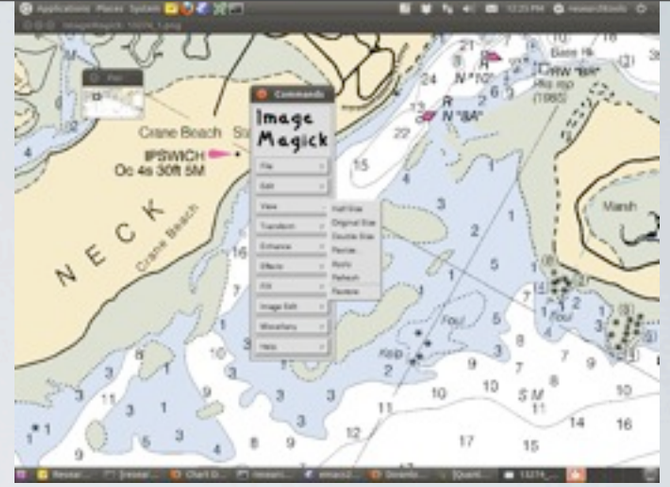
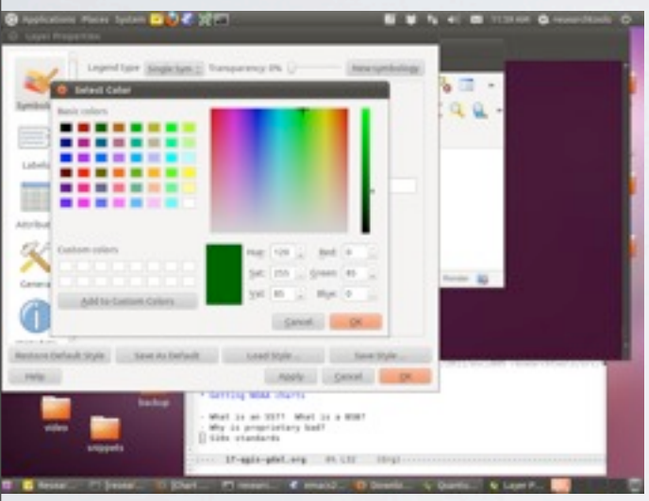
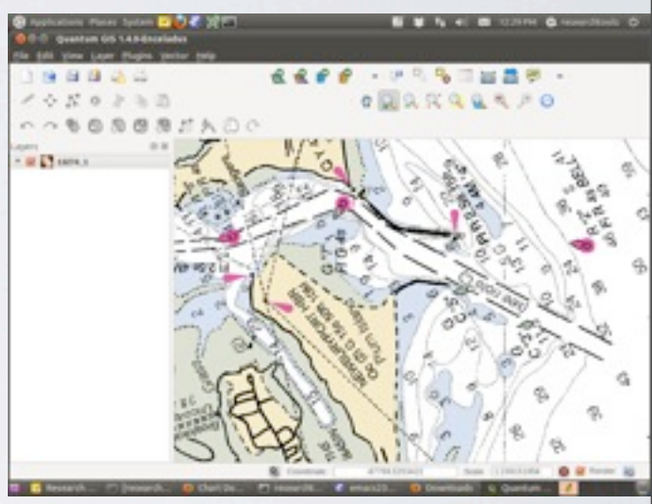






RESEARCH TOOLS 2011
LECTURE 17





2011-Oct-27
Kurt Schwehr
http://schwehr.org

UNH CCOM/JHC
GDAL and QGIS: Viewing Raster and Vector Charts

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Search Link Text Notebook

Research Tools Class 17: GDAL and QGIS

2011-Oct-27
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```
researchtools@ubuntu:~$ cd class
researchtools@ubuntu:~/class$ mkdir 17
researchtools@ubuntu:~/class$ ls
09  11  13  15  17                  examples-20110913.tar.bz2  screencapture
10  12  14  16  examples-20110913  old-15
researchtools@ubuntu:~/class$ cd 17
researchtools@ubuntu:~/class/17$
```

class
Dropbox
hw
old
snippets

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```
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researchtools@ubuntu:~/class$ mkdir 17
researchtools@ubuntu:~/class$ ls
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10  12  14  16  examples-20110913  old-15
researchtools@ubuntu:~/class$ cd 17
researchtools@ubuntu:~/class/17$ wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/17-qgis-
gdal.org
--2011-10-27 11:03:25--  http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/17-qgis-gdal.org
Resolving vislab-ccom.unh.edu... 192.168.3.3
Connecting to vislab-ccom.unh.edu|192.168.3.3|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 13011 (13K) [text/plain]
Saving to: `17-qgis-gdal.org'

100%[======================================================================================>] 13,011      --.-K/s   in 0.004s

2011-10-27 11:03:25 (2.77 MB/s) - `17-qgis-gdal.org' saved [13011/13011]

researchtools@ubuntu:~/class/17$
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14	2011-10-18	Python: parsing GPS data [org]	mp3	pdf key		comment
Vid 14	2011-10-18	Python part 7 - more reusable code			YouTube	

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Search Link Text

Research Tools Class 17: GD

2011-Oct-27
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researchtools@ubuntu:~$ cd class
researchtools@ubuntu:~/class$ mkdir 17
researchtools@ubuntu:~/class$ ls
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researchtools@ubuntu:~/class$ cd 17
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gdal.org
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Resolving vislab-ccom.unh.edu... 192.16
Connecting to vislab-ccom.unh.edu|192.1
HTTP request sent, awaiting response...
Length: 13011 (13K) [text/plain]
Saving to: `17-qgis-gdal.org'

100%[=================================

2011-10-27 11:03:25 (2.77 MB/s) - `17-q

researchtools@ubuntu:~/class/17$
```

snippets

emacs23@ubuntu

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```
#+STARTUP: showall

#+TITLE:     Class 17: qgis and gdal
#+AUTHOR:    Kurt Schwehr
#+EMAIL:     schwehr@ccom.unh.edu
#+DATE:      <2011-10-27 Thu>
#+DESCRIPTION: Marine Research Data Manipulation and Practices
#+KEYWORDS: gdal qgis
#+LANGUAGE:  en
#+OPTIONS:   H:3 num:nil toc:t \n:nil @:t ::t |:t ^:t -:t f:t *:t <:t
#+OPTIONS:   TeX:t LaTeX:nil skip:t d:nil todo:t pri:nil tags:not-in-toc
#+INFOJS_OPT: view:nil toc:nil ltoc:t mouse:underline buttons:0 path:http://orgm→
#+LINK_HOME: http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchto→

* Introduction

It's time to go for some more traditional style GIS and take a short
break from python.

* Setup

#+BEGIN_SRC sh
mkdir -p ~/class/17
cd ~/class/17
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/→
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org   Top L25    (Org)----------
Wrote /home/researchtools/class/17/17-qgis-gdal.org
```

Research Tools C... [researchtools@... [Index of /~schw... researchtools@u... emacs23@ubuntu

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Research Tools Class 17: GDAL and

Search Link Text

Research Tools Class 17: GD

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```
researchtools@ubuntu:~$ cd class
researchtools@ubuntu:~/class$ mkdir 17
researchtools@ubuntu:~/class$ ls
09  11  13  15  17                  exam
10  12  14  16  examples-20110913  old-
researchtools@ubuntu:~/class$ cd 17
researchtools@ubuntu:~/class/17$ wget h
gdal.org
--2011-10-27 11:03:25--  http://vislab-
Resolving vislab-ccom.unh.edu... 192.16
Connecting to vislab-ccom.unh.edu|192.1
HTTP request sent, awaiting response...
Length: 13011 (13K) [text/plain]
Saving to: `17-qgis-gdal.org'

100%[==================================

2011-10-27 11:03:25 (2.77 MB/s) - `17-q

researchtools@ubuntu:~/class/17$
```

snippets

emacs23@ubuntu

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```
#+LINK_HOME: http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchto

* Introduction

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#+BEGIN_SRC sh
mkdir -p ~/class/17
cd ~/class/17
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

http://www.nauticalcharts.noaa.gov/mcd/enc/

"Download NOAA ENCs" - Registered trade mark - hmmm.

http://www.nauticalcharts.noaa.gov/mcd/enc/download_agreement.htm

"Permitted Use":  This is US Government data, so we can use it for
what ever we want, but if you are navigating with this data you are
stuck will all kinds of archaic rules.  Sorry.  But for the class,
it's use and abuse!

#+BEGIN_EXAMPLE
--:---  17-qgis-gdal.org    4% L35     [#] (Org)----------------------------------
```

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- Raster Navigational Charts: NOAA RNCs
- Electronic Navigational Charts: NOAA ENCs®
- PocketCharts
- BookletChart™ (Experimental)
- Chart Updates (LNM and NM Corrections)

Nautical Charting Publications

- United States Coast Pilot®
- U.S. Chart No. 1
- Chart Catalogs
- Dates of Latest Editions (DOLE)
- Upcoming New Editions (SON)

Nautical Charting Utilities

- NOAA's On-Line Chart Viewer

Historical Products

- Historical Maps and Charts

Electronic Navigational Charts: NOAA ENCs®

NOAA Electronic Navigational Charts® (NOAA ENCs) are vector data sets that represent NOAA's newest and most powerful electronic charting product. NOA ENCs conform with the International Hydrographic Office (IHO) S-57 internatio exchange format, comply with the IHO ENC Product Specification, and are provided with incremental updates that supply Notice to Mariners corrections a other critical changes. NOAA ENCs and updates are available for free downloa NOAA ENC data may be used to fuel Electronic Chart and Display Information Systems (ECDIS).

Obtain

- Download NOAA ENCs®
- Download NOAA ENC®Direct to GIS

Make Sure your Electro ENC®) is up-to-date.

Download NOAA ENCs®

Resources

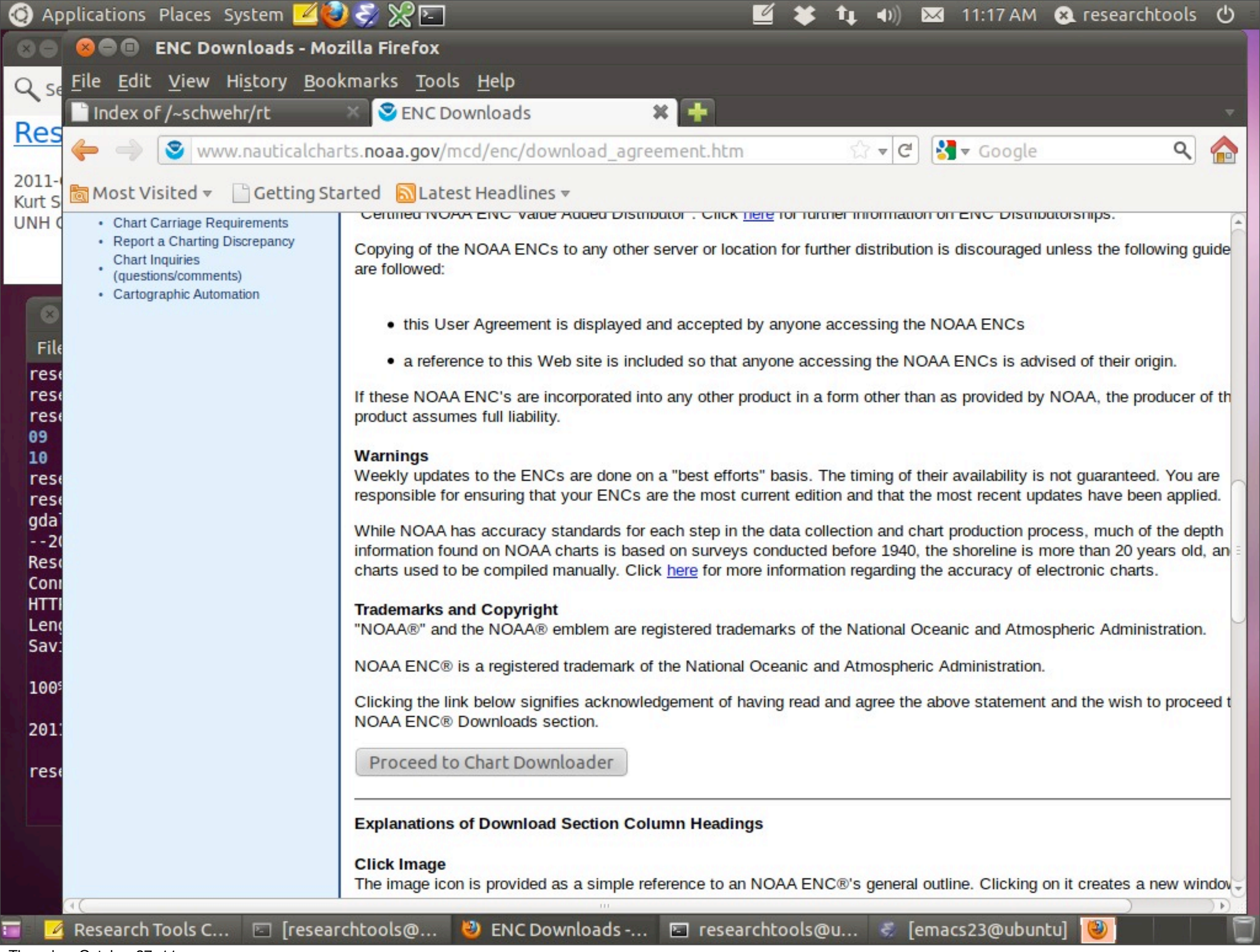
- ENC Software / Free Viewers
- NOAA ENC® Distributorship Requirements
- Certified NOAA ENC® Distributors
- Developers ECDIS Test Data Set

NOAA ENC is a vector database of chart features built to the IHO's S-57 standard. NOAA's Office of Coast Survey, as the national hydrographic office, is exclusively responsible for production and authorization of NOAA ENC data in U.S. waters.

http://www.nauticalcharts.noa…cd/enc/download_agreement.htm

Research Tools C… | [researchtools@… | Electronic Navig… | researchtools@u… | [emacs23@ubuntu]

Click “Download NOAA ENC”



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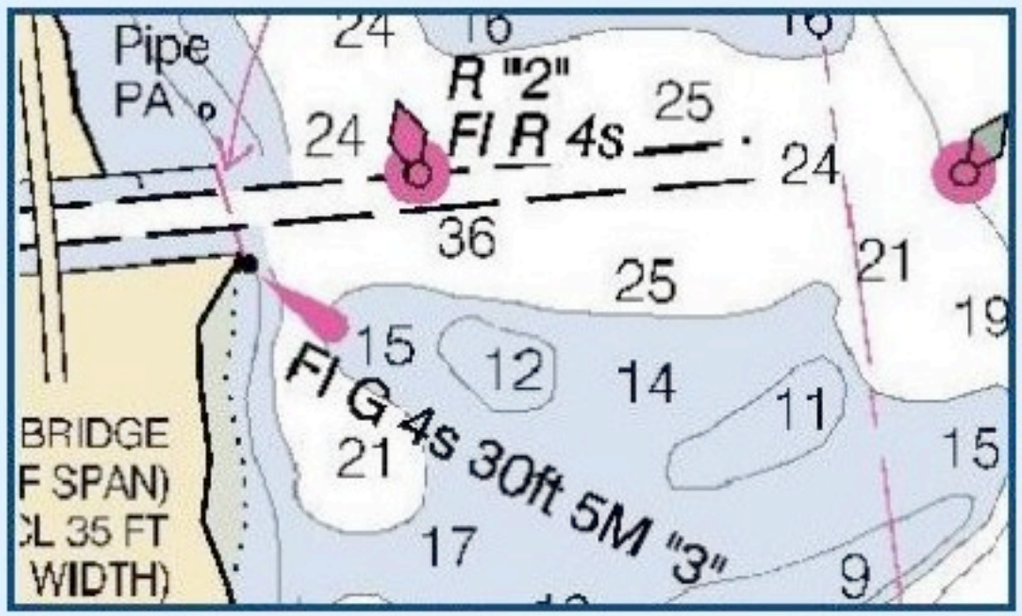

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NOAA Raster Navigational Charts are available in BSB format. NOAA RNCs are geo-referenced, digital images of NOAA navigational charts. NOAA RNCs are updated weekly with Notice to Mariner corrections. NOAA RNCs are designed to be used with Raster Chart Display Systems. Click here for free demo software. RNCs are not meant to be printed.

Click Here to Download NOAA Electronic Navigational Charts

NOAA Electronic Navigational Charts are available in S-57 format. NOAA ENCs are vector files of chart features. NOAA ENCs are updated weekly with Notice to Mariner Corrections. NOAA ENCs support marine navigation by providing the official Electronic Navigational Chart used in ECDIS and in electronic charting systems. Click here for free demo software.

Click Here to use the Graphical Catalog.

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01 CGD	View	98 MB	10/25/2011 23:18:13	05 CGD	View	77 MB	10/25/2011 23:27:00	07 CGD	View	71 MB	10/25/2011 23:35:11
08 CGD	View	64 MB	10/25/2011 23:42:33	09 CGD	View	40 MB	10/25/2011 23:47:33	11 CGD	View	26 MB	10/25/2011 23:50:44
13 CGD	View	38 MB	10/20/2011 22:53:18	14 CGD	View	11 MB	10/25/2011 23:52:16	17 CGD	View	117 MB	10/26/2011 00:05:40

ENCs by State:

Name	XML	Size	Zip File Date Time*	Name	XML	Size	Zip File Date Time*	Name	XML	Size	Zip File Date Time*
AK	View	118 MB	10/25/2011 22:13:42	AL	View	6 MB	10/25/2011 22:47:58	CA	View	25 MB	10/25/2011 22:57:43
CT	View	16 MB	10/25/2011 22:26:28	DE	View	7 MB	10/25/2011 22:33:33	FL	View	44 MB	10/25/2011 22:54:26
GA	View	15 MB	10/25/2011 23:02:42	HI	View	7 MB	09/27/2011 21:57:57	ID	View	0 MB	02/26/2010 17:53:32
IL	View	2 MB	09/29/2011 21:19:22	IN	View	1 MB	09/29/2011 21:19:41	LA	View	36 MB	10/25/2011 22:47:03
MA	View	27 MB	10/25/2011 22:22:53	MD	View	27 MB	10/25/2011 22:36:52	ME	View	43 MB	10/25/2011 22:18:39
MI	View	25 MB	10/20/2011 21:45:44	MN	View	3 MB	10/25/2011 23:05:44	MS	View	8 MB	10/25/2011 22:49:06
NC	View	16 MB	10/25/2011 22:42:38	NH	View	8 MB	10/25/2011 22:19:40	NJ	View	20 MB	10/25/2011 22:32:31
NV	N/A	N/A	N/A	NY	View	28 MB	10/25/2011 22:29:58	OH	View	4 MB	09/29/2011 21:24:57
OR	View	12 MB	10/20/2011 21:59:59	PA	View	4 MB	09/29/2011 21:24:18	PO	View	7 MB	10/25/2011 22:58:40
PR	View	10 MB	05/06/2011 20:55:35	RI	View	12 MB	10/25/2011 22:24:27	SC	View	17 MB	10/25/2011 23:00:49
TX	View	19 MB	10/25/2011 23:05:11	VA	View	31 MB	10/25/2011 22:40:35	VT	N/A	N/A	N/A
WA	View	36 MB	10/20/2011 22:04:28	WI	View	7 MB	10/25/2011 23:06:50	Note: PO = Pacific Ocean			

ENCs by Region (list):

Name	XML	Size	Zip File Date Time*	Name	XML	Size	Zip File Date Time*	Name	XML	Size	Zip File Date Time*
02	View	70 MB	10/25/2011 20:33:44	03	View	53 MB	10/25/2011 20:40:26	04	View	55 MB	10/25/2011 20:47:14

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production process, much of the de
on surveys conducted before 1940,
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```
#+END_EXAMPLE

Insert commentary on rules that do not make sense.  It would better to
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So let's just skip all the CYA stuff and get the data!

#+BEGIN_SRC sh
wget http://www.charts.noaa.gov/ENCs/NH_ENCs.zip
md5sum NH_ENCs.zip
# 8b942e2f3b240a8529851e22cbc11395  NH_ENCs.zip
sha256sum NH_ENCs.zip
# 3e57084aac502cc1f1060b8213225ebe8dbeea82f0776f4be004f9fcb3eec634  NH_ENCs.zip
#+END_SRC

Note that their zip files do not have version numbers or checksums.
Not good.

#+BEGIN_SRC sh
man unzip
unzip --help
unzip -l -v NH_ENCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00
     247  Defl:N      171  31% 2011-10-25 18:19 578dbc67  ENC_ROOT/US2EC03M/US00
--:---  17-qgis-gdal.org   19% L85     [#] (Org)-----------------------------------
```

Research ... [research... Chart Do... researcht... emacs23... User's Ag... Downloads

Thursday, October 27, 11

Just get it directly

researchtools@ubuntu: ~/class/17

File Edit View Search Terminal Help

```
researchtools@ubuntu:~/class/17$ wget http://www.charts.noaa.gov/ENCs/NH_ENCs.zip
--2011-10-27 11:21:10--  http://www.charts.noaa.gov/ENCs/NH_ENCs.zip
Resolving www.charts.noaa.gov... 140.172.17.23, 129.15.96.23, 140.90.33.23, ...
Connecting to www.charts.noaa.gov|140.172.17.23|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 7578527 (7.2M) [application/zip]
Saving to: `NH_ENCs.zip'

100%[======================================================================>] 7,578,527    643K/s   in 11s

2011-10-27 11:21:21 (683 KB/s) - `NH_ENCs.zip' saved [7578527/7578527]

researchtools@ubuntu:~/class/17$ md5sum NH_ENCs.zip
8b942e2f3b240a8529851e22cbc11395  NH_ENCs.zip
researchtools@ubuntu:~/class/17$ sha
sha1pass      sha224sum     sha384sum     shadowconfig  shasum
sha1sum       sha256sum     sha512sum     shares-admin
researchtools@ubuntu:~/class/17$ sha256sum NH_ENCs.zip
3e57084aac502cc1f1060b8213225ebe8dbeea82f0776f4be004f9fcb3eec634  NH_ENCs.zip
researchtools@ubuntu:~/class/17$
```

backup

video

snippets

```
#+BEGIN_SRC sh
man unzip
unzip --help
unzip -l -v NH_ENCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

researchtools@ubuntu: ~/class/17

File Edit View Search Terminal Help

```
  -p  extract files to pipe, no messages     -l  list files (short format)
  -f  freshen existing files, create none    -t  test compressed archive data
  -u  update files, create if necessary      -z  display archive comment only
  -v  list verbosely/show version info       -T  timestamp archive to latest
  -x  exclude files that follow (in xlist)   -d  extract files into exdir
modifiers:
  -n  never overwrite existing files         -q  quiet mode (-qq => quieter)
  -o  overwrite files WITHOUT prompting      -a  auto-convert any text files
  -j  junk paths (do not make directories)   -aa treat ALL files as text
  -U  use escapes for all non-ASCII Unicode  -UU ignore any Unicode fields
  -C  match filenames case-insensitively     -L  make (some) names lowercase
  -X  restore UID/GID info                   -V  retain VMS version numbers
  -K  keep setuid/setgid/tacky permissions   -M  pipe through "more" pager
  -O CHARSET  specify a character encoding for DOS, Windows and OS/2 archives
  -I CHARSET  specify a character encoding for UNIX and other archives

See "unzip -hh" or unzip.txt for more help.  Examples:
  unzip data1 -x joe   => extract all files except joe from zipfile data1.zip
  unzip -p foo | more  => send contents of foo.zip via pipe into program more
  unzip -fo foo ReadMe => quietly replace existing ReadMe if archive file newer
researchtools@ubuntu:~/class/17$ unzip -l -v NH_ENCs.zip
```

backup

video

snippets

```
#+BEGIN_SRC sh
man unzip
unzip --help
unzip -l -v NH_ENCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT→
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00→
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

researchtools@ubuntu: ~/class/17

File Edit View Search Terminal Help

```
  -K  keep setuid/setgid/tacky permissions   -M  pipe through "more" pager
  -O CHARSET  specify a character encoding for DOS, Windows and OS/2 archives
  -I CHARSET  specify a character encoding for UNIX and other archives

See "unzip -hh" or unzip.txt for more help.  Examples:
  unzip data1 -x joe   => extract all files except joe from zipfile data1.zip
  unzip -p foo | more  => send contents of foo.zip via pipe into program more
  unzip -fo foo ReadMe => quietly replace existing ReadMe if archive file newer
researchtools@ubuntu:~/class/17$ unzip -l -v NH_ENCs.zip
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT.TXT
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US000089.TXT
     247  Defl:N      171  31% 2011-10-25 18:19 578dbc67  ENC_ROOT/US2EC03M/US001241.TXT
     377  Defl:N      252  33% 2011-10-25 18:19 eceb83a8  ENC_ROOT/US2EC03M/US001343.TXT
     709  Defl:N      324  54% 2011-10-25 18:19 e4752322  ENC_ROOT/US2EC03M/US001398.TXT
    7610  Defl:N     3326  56% 2011-10-25 18:19 d64f2f16  ENC_ROOT/US2EC03M/US2EC03E.TXT
 1243567  Defl:N   382775  69% 2011-10-25 18:19 2efcf254  ENC_ROOT/US2EC03M/US2EC03M.000
     494  Defl:N      277  44% 2011-10-25 18:19 5b5958fa  ENC_ROOT/US2EC04M/US000092.TXT
```

backup

video

snippets

```
#+BEGIN_SRC sh
man unzip
unzip --help
unzip -l -v NH_ENCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT→
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00→
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:26 AM researchtools

researchtools@ubuntu: ~/class/17

File Edit View Search Terminal Help

```
  -K  keep setuid/setgid/tacky permissions   -M  pipe through "more" pager
  -O CHARSET  specify a character encoding for DOS, Windows and OS/2 archives
  -I CHARSET  specify a character encoding for UNIX and other archives

See "unzip -hh" or unzip.txt for more help.  Examples:
  unzip data1 -x joe   => extract all files except joe from zipfile data1.zip
  unzip -p foo | more  => send contents of foo.zip via pipe into program more
  unzip -fo foo ReadMe => quietly replace existing ReadMe if archive file newer
researchtools@ubuntu:~/class/17$ unzip -l -v NH_ENCs.zip
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT.TXT
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US000089.TXT
     247  Defl:N      171  31% 2011-10-25 18:19 578dbc67  ENC_ROOT/US2EC03M/US001241.TXT
     377  Defl:N      252  33% 2011-10-25 18:19 eceb83a8  ENC_ROOT/US2EC03M/US001343.TXT
     709  Defl:N      324  54% 2011-10-25 18:19 e4752322  ENC_ROOT/US2EC03M/US001398.TXT
    7610  Defl:N     3326  56% 2011-10-25 18:19 d64f2f16  ENC_ROOT/US2EC03M/US2EC03E.TXT
 1243567  Defl:N   382775  69% 2011-10-25 18:19 2efcf254  ENC_ROOT/US2EC03M/US2EC03M.000
     494  Defl:N      277  44% 2011-10-25 18:19 5b5958fa  ENC_ROOT/US2EC04M/US000092.TXT
```

backup

video

snippets

```
#+BEGIN_SRC sh
man unzip
unzip --help
unzip -l -v NH_ENCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT→
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00→
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:26 AM researchtools

researchtools@ubuntu: ~/class/17

File Edit View Search Terminal Help

```
   4659  Defl:N     2150  54% 2011-10-25 18:19 2152b318  ENC_ROOT/US5ME01M/US003423.TXT
 761259  Defl:N   288500  62% 2011-10-25 18:19 73731802  ENC_ROOT/US5ME01M/US5ME01M.000
    507  Defl:N      280  45% 2011-10-25 18:19 94104a91  ENC_ROOT/US5NH01M/US000175.TXT
    793  Defl:N      462  42% 2011-10-25 18:19 4755da01  ENC_ROOT/US5NH01M/US001793.TXT
   3946  Defl:N     1877  52% 2011-10-25 18:19 a74bb36d  ENC_ROOT/US5NH01M/US002556.TXT
    802  Defl:N      429  47% 2011-10-25 18:19 559e6f00  ENC_ROOT/US5NH01M/US003445.TXT
1828499  Defl:N   700953  62% 2011-10-25 18:19 9ad6ec9e  ENC_ROOT/US5NH01M/US5NH01M.000
   9234  Defl:N     2485  73% 2011-10-25 18:19 1e232f25  ENC_ROOT/US5NH01M/US5NH01M.001
    183  Defl:N      127  31% 2011-10-25 18:19 ed1223b7  ENC_ROOT/US5NH02M/US000345.TXT
    413  Defl:N      245  41% 2011-10-25 18:19 c65e4159  ENC_ROOT/US5NH02M/US000531.TXT
   3699  Defl:N     1739  53% 2011-10-25 18:19 b3c9ebcd  ENC_ROOT/US5NH02M/US000710.TXT
    213  Defl:N      156  27% 2011-10-25 18:19 8e899f90  ENC_ROOT/US5NH02M/US000849.TXT
    791  Defl:N      458  42% 2011-10-25 18:19 af4f919e  ENC_ROOT/US5NH02M/US001732.TXT
    816  Defl:N      432  47% 2011-10-25 18:19 bac0bd8a  ENC_ROOT/US5NH02M/US002002.TXT
    412  Defl:N      266  35% 2011-10-25 18:19 56113def  ENC_ROOT/US5NH02M/US002003.TXT
    517  Defl:N      285  45% 2011-10-25 18:19 02f67b59  ENC_ROOT/US5NH02M/US003446.TXT
    247  Defl:N      173  30% 2011-10-25 18:19 137e8a5a  ENC_ROOT/US5NH02M/US003711.TXT
2647896  Defl:N   829049  69% 2011-10-25 18:19 3ce575f3  ENC_ROOT/US5NH02M/US5NH02M.000
   2351  Defl:N     1061  55% 2011-10-25 18:19 e06156e0  ENC_ROOT/US5NH02M/US5NH02M.001
--------          -------  ---                            -------
20450545          7564547  63%                            103 files
researchtools@ubuntu:~/class/17$ unzip
```

backup

video

snippets

```
#+BEGIN_SRC sh
man unzip
unzip --help
unzip -l -v NH_ENCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT→
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00→
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

researchtools@ubuntu: ~/class/17/ENC_ROOT

File Edit View Search Terminal Help

```
drwxr-xr-x 15 researchtools researchtools    4096 2011-10-27 11:27 ENC_ROOT
-rw-r--r--  1 researchtools researchtools 7578527 2011-10-25 18:19 NH_ENCs.zip
researchtools@ubuntu:~/class/17$ cd ENC_ROOT/
researchtools@ubuntu:~/class/17/ENC_ROOT$ ls -l
total 80
-rw-r--r-- 1 researchtools researchtools 13698 2011-10-25 18:19 CATALOG.031
-rw-r--r-- 1 researchtools researchtools  3673 2011-10-25 18:19 README.TXT
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US2EC03M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US2EC04M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US3EC04M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US3EC05M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US3EC10M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US4MA04M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US4MA19M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US4ME01M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5MA04M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5MA19M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5ME01M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5NH01M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5NH02M
-rw-r--r-- 1 researchtools researchtools  5172 2011-10-25 18:19 USERAGREEMENT.TXT
researchtools@ubuntu:~/class/17/ENC_ROOT$
```

backup

video

snippets

```
#+BEGIN_SRC sh
man unzip
unzip --help
unzip -l -v NH_ENCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

researchtools@ubuntu: ~/class/17/ENC_ROOT

File Edit View Search Terminal Help

```
  inflating: ENC_ROOT/US5NH02M/US5NH02M.000
  inflating: ENC_ROOT/US5NH02M/US5NH02M.001
researchtools@ubuntu:~/class/17$ ls -l
total 7440
-rw-r--r--  1 researchtools researchtools   13102 2011-10-27 11:04 17-qgis-gdal.org
-rw-r--r--  1 researchtools researchtools   13011 2011-10-27 09:57 17-qgis-gdal.org~
drwxr-xr-x 15 researchtools researchtools    4096 2011-10-27 11:27 ENC_ROOT
-rw-r--r--  1 researchtools researchtools 7578527 2011-10-25 18:19 NH_ENCs.zip
researchtools@ubuntu:~/class/17$ cd ENC_ROOT/
researchtools@ubuntu:~/class/17/ENC_ROOT$ ls -l
total 80
-rw-r--r-- 1 researchtools researchtools 13698 2011-10-25 18:19 CATALOG.031
-rw-r--r-- 1 researchtools researchtools  3673 2011-10-25 18:19 README.TXT
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US2EC03M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US2EC04M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US3EC04M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US3EC05M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US3EC10M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US4MA04M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US4MA19M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US4ME01M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5MA04M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5MA19M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5ME01M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5NH01M
drwxr-xr-x 2 researchtools researchtools  4096 2011-10-27 11:27 US5NH02M
-rw-r--r-- 1 researchtools researchtools  5172 2011-10-25 18:19 USERAGREEMENT.TXT
researchtools@ubuntu:~/class/17/ENC_ROOT$ less README.TXT
```

backup

video

snippets

```
#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

Applications Places System 11:28 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT

File Edit View Search Terminal Help

```
discouraged unless the following guidelines are followed: 1) the NOAA ENC<AE>s and supplementary files including the CATA
LOG.031 and README.TXT are included in their entirety, 2) this disclaimer is displayed to and accepted by anyone who acce
sses the NOAA ENC<AE>s, and 3) a reference to this Web site is included so that anyone accessing the NOAA ENC<AE>s is adv
ised of where they originated.

If these NOAA ENC<AE>s are incorporated into any other product in a form other than as provided by NOAA, the producer of
that product assumes full liability and must adhere to conditions 2 and 3 described in the paragraph above concerning cop
ying or reproduction.
List of Datasets In This Exchange Set:

Chart|Title|Edition|Update Application Date|Update|Issue Date|Cell Name

13003|Cape Sable to Cape Hatteras|22|2011-10-24|0|2011-10-24|US2EC03M
13006|West Quoddy Head to New York|7|2011-06-02|2|2011-09-07|US2EC04M
13006|West Quoddy Head to New York|2|2007-02-15|2|2009-03-20|US3EC04M
13009|Gulf of Maine and Georges Bank|6|2010-08-31|0|2010-08-31|US3EC05M
13260|Bay of Fundy to Cape Cod|29|2011-04-20|4|2011-10-19|US3EC10M
13278|Portsmouth to Cape Ann|18|2011-05-19|2|2011-10-12|US4MA04M
13274|Portsmouth Harbor to Boston Harbor|3|2011-05-26|0|2011-05-26|US4MA19M
13286|Cape Elizabeth to Portsmouth|8|2011-05-23|0|2011-05-23|US4ME01M
13278|Hampton Harbor|1|2010-04-23|0|2010-04-23|US5MA04M
13274|Merrimack River Extension|3|2011-05-03|2|2011-10-12|US5MA19M
13286|Cape Porpoise Harbor; Wells Harbor; Kennebunk River; Perkins Cove|1|2010-06-16|0|2010-06-16|US5ME01M
13285|Portsmouth to Dover and Exeter|15|2011-06-01|1|2011-07-13|US5NH01M
13283|Portsmouth Harbor Cape Neddick Harbor to Isles of Shoals; Portsmouth Harbor|15|2011-06-01|1|2011-08-31|US5NH02M

Total Number = 13
(END)
```

backup

video

snippets

```
#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT→
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00→
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

Research To… [researchto… [Chart Downl… researchtool… emacs23@u… Downloads

researchtools@ubuntu: ~/class/17/ENC_ROOT

File Edit View Search Terminal Help

```
1820    ./US5NH01M
96      ./US4MA19M
4080    ./US4MA04M
772     ./US5ME01M
468     ./US5MA19M
1244    ./US2EC03M
304     ./US3EC05M
1464    ./US4ME01M
2680    ./US2EC04M
304     ./US5MA04M
108     ./US3EC04M
20312   .
researchtools@ubuntu:~/class/17/ENC_ROOT$ du -h
2.6M    ./US5NH02M
4.3M    ./US3EC10M
1.8M    ./US5NH01M
96K     ./US4MA19M
4.0M    ./US4MA04M
772K    ./US5ME01M
468K    ./US5MA19M
1.3M    ./US2EC03M
304K    ./US3EC05M
1.5M    ./US4ME01M
2.7M    ./US2EC04M
304K    ./US5MA04M
108K    ./US3EC04M
20M     .
researchtools@ubuntu:~/class/17/ENC_ROOT$ find .
```

backup

video

snippets

```
#+BEGIN_EXAMPLE
Archive:  NH_ENCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
   13698  Defl:N     2711  80% 2011-10-25 18:19 4b571cc5  ENC_ROOT/CATALOG.031
    3673  Defl:N     1717  53% 2011-10-25 18:19 b84cdd56  ENC_ROOT/README.TXT
    5172  Defl:N     2126  59% 2011-10-25 18:19 a6832ba0  ENC_ROOT/USERAGREEMENT
     516  Defl:N      285  45% 2011-10-25 18:19 12ff4111  ENC_ROOT/US2EC03M/US00
--:---  17-qgis-gdal.org   23% L101   (Org)----------------------------------------
```

Applications Places System 11:31 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT

File Edit View Search Terminal Help

```
./US5MA04M/US001766.TXT
./US3EC04M
./US3EC04M/US000092.TXT
./US3EC04M/US3EC04M.002
./US3EC04M/US3EC04M.000
./US3EC04M/US3EC04M.001
./US3EC04M/US13006P.TXT
researchtools@ubuntu:~/class/17/ENC_ROOT$ file *
CATALOG.031:       data
README.TXT:        ISO-8859 English text, with very long lines, with CRLF line terminators
US2EC03M:          directory
US2EC04M:          directory
US3EC04M:          directory
US3EC05M:          directory
US3EC10M:          directory
US4MA04M:          directory
US4MA19M:          directory
US4ME01M:          directory
US5MA04M:          directory
US5MA19M:          directory
US5ME01M:          directory
US5NH01M:          directory
US5NH02M:          directory
USERAGREEMENT.TXT: ISO-8859 English text, with very long lines, with CRLF line terminators
researchtools@ubuntu:~/class/17/ENC_ROOT$ file . | xargs file
.::        ERROR: cannot open `.:' (No such file or directory)
directory: ERROR: cannot open `directory' (No such file or directory)
researchtools@ubuntu:~/class/17/ENC_ROOT$ find . | xargs file
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

researchtools@ubuntu: ~/class/17/ENC_ROOT

File Edit View Search Terminal Help

```
./US4ME01M/US003409.TXT: ASCII English text, with very long lines, with CRLF line terminators
./US4ME01M/US001735.TXT: ASCII English text, with CRLF line terminators
./US2EC04M:              directory
./US2EC04M/US000092.TXT: ASCII English text, with CRLF line terminators
./US2EC04M/US2EC04M.002: data
./US2EC04M/USNTEC09.TXT: ASCII English text, with CRLF line terminators
./US2EC04M/US2EC04M.000: data
./US2EC04M/US2NOTES.TXT: ASCII English text, with CRLF line terminators
./US2EC04M/US2EC04M.001: data
./US2EC04M/US2NOTEA.TXT: ASCII English text, with CRLF line terminators
./US2EC04M/USTSEZNE.TXT: ASCII English text, with CRLF line terminators
./US2EC04M/US000299.TXT: ASCII English text, with CRLF line terminators
./US2EC04M/US2EC04E.TXT: ASCII English text, with CRLF line terminators
./US2EC04M/US2NOTEJ.TXT: ASCII English text, with CRLF line terminators
./US2EC04M/US003356.TXT: ASCII English text, with CRLF line terminators
./README.TXT:            ISO-8859 English text, with very long lines, with CRLF line terminators
./US5MA04M:              directory
./US5MA04M/US001688.TXT: ASCII English text, with CRLF line terminators
./US5MA04M/US002718.TXT: ASCII English text, with CRLF line terminators
./US5MA04M/US5MA04M.000: data
./US5MA04M/US001766.TXT: ASCII English text, with CRLF line terminators
./US3EC04M:              directory
./US3EC04M/US000092.TXT: ASCII English text, with CRLF line terminators
./US3EC04M/US3EC04M.002: data
./US3EC04M/US3EC04M.000: data
./US3EC04M/US3EC04M.001: data
./US3EC04M/US13006P.TXT: ASCII English text, with very long lines, with CRLF line terminators
researchtools@ubuntu:~/class/17/ENC_ROOT$ find . | xargs file | cut -d: -f2
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Applications Places System 11:33 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT

File Edit View Search Terminal Help

```
           ISO-8859 English text, with very long lines, with CRLF line terminators
             directory
ASCII English text, with CRLF line terminators
ASCII English text, with CRLF line terminators
data
ASCII English text, with CRLF line terminators
             directory
ASCII English text, with CRLF line terminators
data
data
data
ASCII English text, with very long lines, with CRLF line terminators
researchtools@ubuntu:~/class/17/ENC_ROOT$ find . | xargs file | cut -d: -f2 | sort -u
 Alias Maya Image File
 ASCII English text, with CRLF, CR line terminators
 ASCII English text, with CRLF line terminators
 ASCII English text, with no line terminators
 ASCII English text, with very long lines, with CRLF line terminators
 ASCII English text, with very long lines, with no line terminators
 ASCII text, with CRLF line terminators
 data
          data
             directory
                      directory
           ISO-8859 English text, with very long lines, with CRLF line terminators
     ISO-8859 English text, with very long lines, with CRLF line terminators
Non-ISO extended-ASCII English text, with CRLF line terminators
researchtools@ubuntu:~/class/17/ENC_ROOT$
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:36 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
ASCII English text, with CRLF line terminators
            directory
ASCII English text, with CRLF line terminators
data
data
data
ASCII English text, with very long lines, with CRLF line terminators
researchtools@ubuntu:~/class/17/ENC_ROOT$ find . | xargs file | cut -d: -f2 | sort -u
 Alias Maya Image File
 ASCII English text, with CRLF, CR line terminators
 ASCII English text, with CRLF line terminators
 ASCII English text, with no line terminators
 ASCII English text, with very long lines, with CRLF line terminators
 ASCII English text, with very long lines, with no line terminators
 ASCII text, with CRLF line terminators
 data
          data
             directory
                     directory
           ISO-8859 English text, with very long lines, with CRLF line terminators
     ISO-8859 English text, with very long lines, with CRLF line terminators
 Non-ISO extended-ASCII English text, with CRLF line terminators
researchtools@ubuntu:~/class/17/ENC_ROOT$ cd US5
US5MA04M/ US5MA19M/ US5ME01M/ US5NH01M/ US5NH02M/
researchtools@ubuntu:~/class/17/ENC_ROOT$ cd US5NH01M/
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ pwd
/home/researchtools/class/17/ENC_ROOT/US5NH01M
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ clear
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:40 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ pwd
/home/researchtools/class/17/ENC_ROOT/US5NH01M
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ls -l
total 1816
-rw-r--r-- 1 researchtools researchtools     507 2011-10-25 18:19 US000175.TXT
-rw-r--r-- 1 researchtools researchtools     793 2011-10-25 18:19 US001793.TXT
-rw-r--r-- 1 researchtools researchtools    3946 2011-10-25 18:19 US002556.TXT
-rw-r--r-- 1 researchtools researchtools     802 2011-10-25 18:19 US003445.TXT
-rw-r--r-- 1 researchtools researchtools 1828499 2011-10-25 18:19 US5NH01M.000
-rw-r--r-- 1 researchtools researchtools    9234 2011-10-25 18:19 US5NH01M.001
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ echo ~/class/17/ENC_ROOT/US5NH01M
/home/researchtools/class/17/ENC_ROOT/US5NH01M
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ pwd
/home/researchtools/class/17/ENC_ROOT/US5NH01M
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ls
US000175.TXT  US001793.TXT  US002556.TXT  US003445.TXT  US5NH01M.000  US5NH01M.001
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ file *
US000175.TXT: ASCII English text, with CRLF line terminators
US001793.TXT: ASCII English text, with CRLF line terminators
US002556.TXT: ASCII English text, with CRLF line terminators
US003445.TXT: ASCII English text, with CRLF line terminators
US5NH01M.000: data
US5NH01M.001: data
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ less US5NH01M.000
```

backup

video

snippets

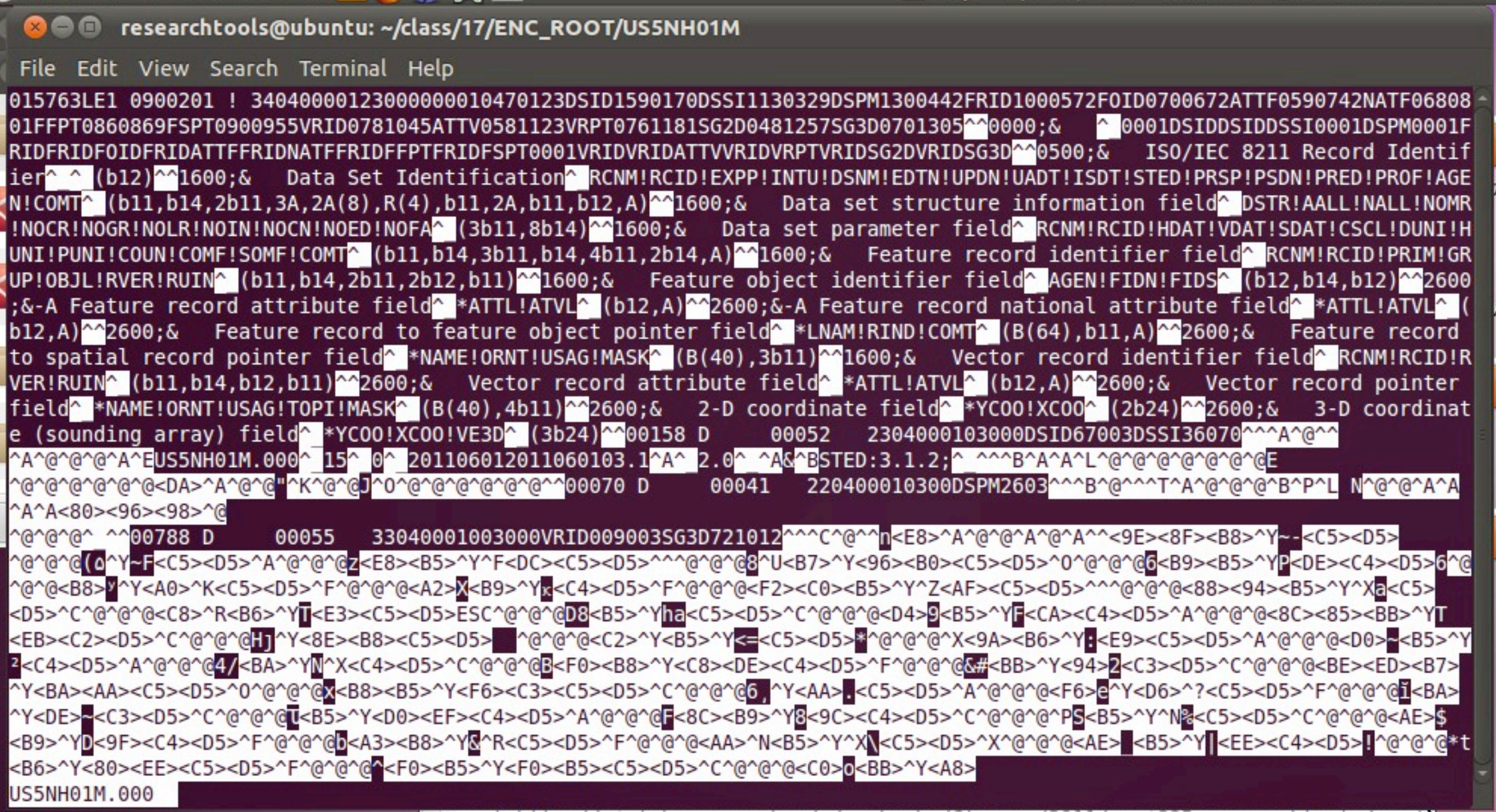
```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

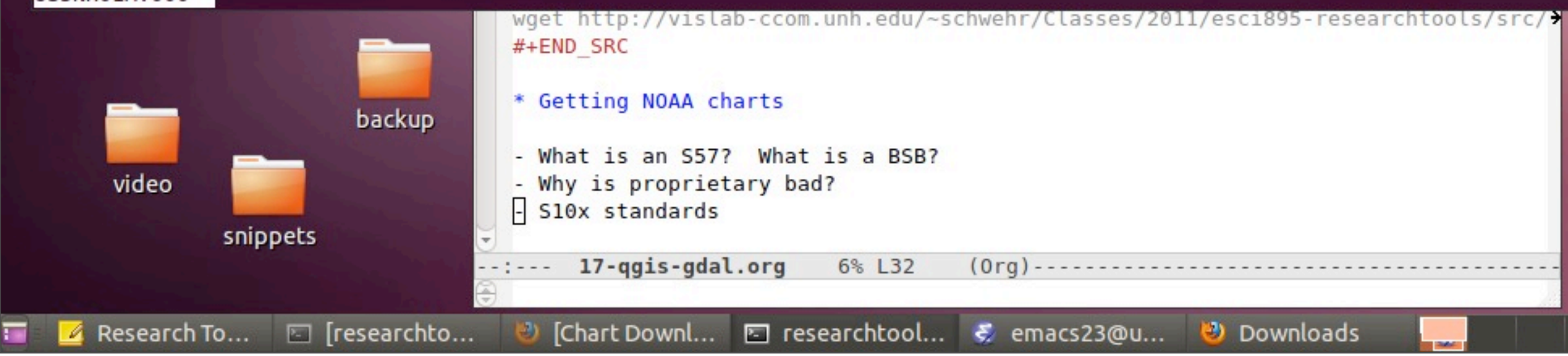
Applications Places System 11:41 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help



```
015763LE1 0900201 ! 340400001230000000010470123DSID1590170DSSI1130329DSPM1300442FRID1000572FOID0700672ATTF0590742NATF06808
01FFPT0860869FSPT0900955VRID0781045ATTV0581123VRPT0761181SG2D0481257SG3D0701305^^0000;&   ^0001DSIDDSIDDSSI0001DSPM0001F
RIDFRIDFOIDFRIDATTFFRIDNATFFRIDFFPTFRIDFSPT0001VRIDVRIDATTVVRIDVRPTVRIDSG2DVRIDSG3D^^0500;&   ISO/IEC 8211 Record Identif
ier^ ^ (b12)^^1600;&   Data Set Identification^ RCNM!RCID!EXPP!INTU!DSNM!EDTN!UPDN!UADT!ISDT!STED!PRSP!PSDN!PRED!PROF!AGE
N!COMT^ (b11,b14,2b11,3A,2A(8),R(4),b11,2A,b11,b12,A)^^1600;&   Data set structure information field^ DSTR!AALL!NALL!NOMR
!NOCR!NOGR!NOLR!NOIN!NOCN!NOED!NOFA^ (3b11,8b14)^^1600;&   Data set parameter field^ RCNM!RCID!HDAT!VDAT!SDAT!CSCL!DUNI!H
UNI!PUNI!COUN!COMF!SOMF!COMT^ (b11,b14,3b11,b14,4b11,2b14,A)^^1600;&   Feature record identifier field^ RCNM!RCID!PRIM!GR
UP!OBJL!RVER!RUIN^ (b11,b14,2b11,2b12,b11)^^1600;&   Feature object identifier field^ AGEN!FIDN!FIDS^ (b12,b14,b12)^^2600
;&-A Feature record attribute field^ *ATTL!ATVL^ (b12,A)^^2600;&-A Feature record national attribute field^ *ATTL!ATVL^ (
b12,A)^^2600;&   Feature record to feature object pointer field^ *LNAM!RIND!COMT^ (B(64),b11,A)^^2600;&   Feature record
to spatial record pointer field^ *NAME!ORNT!USAG!MASK^ (B(40),3b11)^^1600;&   Vector record identifier field^ RCNM!RCID!R
VER!RUIN^ (b11,b14,b12,b11)^^2600;&   Vector record attribute field^ *ATTL!ATVL^ (b12,A)^^2600;&   Vector record pointer
field^ *NAME!ORNT!USAG!TOPI!MASK^ (B(40),4b11)^^2600;&   2-D coordinate field^ *YCOO!XCOO^ (2b24)^^2600;&   3-D coordinat
e (sounding array) field^ *YCOO!XCOO!VE3D^ (3b24)^^00158 D     00052   230400010300DSID67003DSSI36070^^^A^@^^
^A^@^@^@^A^EUS5NH01M.000^ 15^ 0^ 201106012011060103.1^A^ 2.0^ ^A&^BSTED:3.1.2;^ ^^^B^A^A^L^@^@^@^@^@^@E
^@^@^@^@^@^@<DA>^A^@^@"^K^@^@J^O^@^@^@^@^@^@^@00070 D     00041   220400010300DSPM2603^^^B^@^^^T^A^@^@^@^B^P^L N^@^@^A^A
^A^A<80><96><98>^@
^@^@^@^ ^^00788 D     00055   330400010030000VRID009003SG3D721012^^^C^@^^n<E8>^A^@^@^A^@^A^^<9E><8F><B8>^Y~-<C5><D5>
^@^@^@(^Y~F<C5><D5>^A^@^@^@z<E8><B5>^Y^F<DC><C5><D5>^^^@^@^@8^U<B7>^Y<96><B0><C5><D5>^O^@^@^@6<B9><B5>^YP<DE><C4><D5>6^@
^@^@<B8>^Y^Y<A0>^K<C5><D5>^F^@^@^@<A2>X<B9>^Yx<C4><D5>^F^@^@^@<F2><C0><B5>^Y^Z<AF><C5><D5>^^^@^@^@<88><94><B5>^Y^Xa<C5>
<D5>^C^@^@^@<C8>^R<B6>^YT<E3><C5><D5>ESC^@^@^@D8<B5>^Yha<C5><D5>^C^@^@^@<D4>9<B5>^YF<CA><C4><D5>^A^@^@^@<8C><85><BB>^YT
<EB><C2><D5>^C^@^@^@Hj^Y<8E><B8><C5><D5>  ^@^@^@<C2>^Y<B5>^Y<=<C5><D5>*^@^@^@^X<9A><B6>^Y:<E9><C5><D5>^A^@^@^@<D0>~<B5>^Y
²<C4><D5>^A^@^@^@4/<BA>^YN^X<C4><D5>^C^@^@^@B<F0><B8>^Y<C8><DE><C4><D5>^F^@^@^@&#<BB>^Y<94>2<C3><D5>^C^@^@^@<BE><ED><B7>
^Y<BA><AA><C5><D5>^O^@^@^@x<B8><B5>^Y<F6><C3><C5><D5>^C^@^@^@6,^Y<AA>.<C5><D5>^A^@^@^@<F6>e^Y<D6>^?<C5><D5>^F^@^@^@i<BA>
^Y<DE>~<C3><D5>^C^@^@^@t<B5>^Y<D0><EF><C4><D5>^A^@^@^@F<8C><B9>^Y8<9C><C4><D5>^C^@^@^@PS<B5>^Y^N%<C5><D5>^C^@^@^@<AE>$
<B9>^YD<9F><C4><D5>^F^@^@^@b<A3><B8>^Y&^R<C5><D5>^F^@^@^@<AA>^N<B5>^Y^X\<C5><D5>^X^@^@^@<AE>_<B5>^Y|<EE><C4><D5>!^@^@^@*t
<B6>^Y<80><EE><C5><D5>^F^@^@^@^<F0><B5>^Y<F0><B5><C5><D5>^C^@^@^@<C0>o<BB>^Y<A8>
US5NH01M.000
```



Applications Places System 11:42 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
ogrinfo(1)                                                    ogrinfo(1)

NAME
       ogrinfo - .TH "ogrinfo" 1 "Wed Aug 24 2011" "GDAL"

NAME
       ogrinfo - lists information about an OGR supported data source

SYNOPSIS
       ogrinfo [-ro] [-q] [-where restricted_where]
                     [-spat xmin ymin xmax ymax] [-fid fid]
                     [-sql statement] [-al] [-so] [--formats]
                     datasource_name [layer [layer ...]]

DESCRIPTION
       The ogrinfo program lists various information about an OGR supported data source to stdout (the terminal).

       -ro:
           Open the data source in read-only mode.

       -al:
           List all features of all layers (used instead of having to give layer names as arguments).

       -so:
           Summary Only: supress listing of features, show only the summary information like projection, schema,
           feature count and extents.
```

Manual page ogrinfo(1) line 1

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------------------------------------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:43 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
-rw-r--r-- 1 researchtools researchtools     507 2011-10-25 18:19 US000175.TXT
-rw-r--r-- 1 researchtools researchtools     793 2011-10-25 18:19 US001793.TXT
-rw-r--r-- 1 researchtools researchtools    3946 2011-10-25 18:19 US002556.TXT
-rw-r--r-- 1 researchtools researchtools     802 2011-10-25 18:19 US003445.TXT
-rw-r--r-- 1 researchtools researchtools 1828499 2011-10-25 18:19 US5NH01M.000
-rw-r--r-- 1 researchtools researchtools    9234 2011-10-25 18:19 US5NH01M.001
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ echo ~/class/17/ENC_ROOT/US5NH01M
/home/researchtools/class/17/ENC_ROOT/US5NH01M
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ pwd
/home/researchtools/class/17/ENC_ROOT/US5NH01M
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ls
US000175.TXT  US001793.TXT  US002556.TXT  US003445.TXT  US5NH01M.000  US5NH01M.001
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ file *
US000175.TXT: ASCII English text, with CRLF line terminators
US001793.TXT: ASCII English text, with CRLF line terminators
US002556.TXT: ASCII English text, with CRLF line terminators
US003445.TXT: ASCII English text, with CRLF line terminators
US5NH01M.000: data
US5NH01M.001: data
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ less US5NH01M.000
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogrinfo
Usage: ogrinfo [--help-general] [-ro] [-q] [-where restricted_where]
               [-spat xmin ymin xmax ymax] [-fid fid]
               [-sql statement] [-al] [-so] [-fields={YES/NO}]
               [-geom={YES/NO/SUMMARY}][--formats]
               datasource_name [layer [layer ...]]
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ man ogrinfo
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogrinfo --formats
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:43 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
Supported Formats:
  -> "ESRI Shapefile" (read/write)
  -> "MapInfo File" (read/write)
  -> "UK .NTF" (readonly)
  -> "SDTS" (readonly)
  -> "TIGER" (read/write)
  -> "S57" (read/write)
  -> "DGN" (read/write)
  -> "VRT" (readonly)
  -> "REC" (readonly)
  -> "Memory" (read/write)
  -> "BNA" (read/write)
  -> "CSV" (read/write)
  -> "GML" (read/write)
  -> "GPX" (read/write)
  -> "KML" (read/write)
  -> "GeoJSON" (read/write)
  -> "Interlis 1" (read/write)
  -> "Interlis 2" (read/write)
  -> "GMT" (read/write)
  -> "SQLite" (read/write)
  -> "ODBC" (read/write)
  -> "PGeo" (readonly)
  -> "OGDI" (readonly)
  -> "PostgreSQL" (read/write)
  -> "MySQL" (read/write)
  -> "XPlane" (readonly)
:
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
-rw-r--r-- 1 researchtools researchtools     793 2011-10-25 18:19 US001793.TXT
-rw-r--r-- 1 researchtools researchtools    3946 2011-10-25 18:19 US002556.TXT
-rw-r--r-- 1 researchtools researchtools     802 2011-10-25 18:19 US003445.TXT
-rw-r--r-- 1 researchtools researchtools 1828499 2011-10-25 18:19 US5NH01M.000
-rw-r--r-- 1 researchtools researchtools    9234 2011-10-25 18:19 US5NH01M.001
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ echo ~/class/17/ENC_ROOT/US5NH01M
/home/researchtools/class/17/ENC_ROOT/US5NH01M
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ pwd
/home/researchtools/class/17/ENC_ROOT/US5NH01M
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ls
US000175.TXT  US001793.TXT  US002556.TXT  US003445.TXT  US5NH01M.000  US5NH01M.001
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ file *
US000175.TXT: ASCII English text, with CRLF line terminators
US001793.TXT: ASCII English text, with CRLF line terminators
US002556.TXT: ASCII English text, with CRLF line terminators
US003445.TXT: ASCII English text, with CRLF line terminators
US5NH01M.000: data
US5NH01M.001: data
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ less US5NH01M.000
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogrinfo
Usage: ogrinfo [--help-general] [-ro] [-q] [-where restricted_where]
               [-spat xmin ymin xmax ymax] [-fid fid]
               [-sql statement] [-al] [-so] [-fields={YES/NO}]
               [-geom={YES/NO/SUMMARY}][--formats]
               datasource_name [layer [layer ...]]
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ man ogrinfo
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogrinfo --formats | less
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogrinfo US5NH01M.000
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Applications Places System 11:44 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
Usage: ogrinfo [--help-general] [-ro] [-q] [-where restricted_where]
               [-spat xmin ymin xmax ymax] [-fid fid]
               [-sql statement] [-al] [-so] [-fields={YES/NO}]
               [-geom={YES/NO/SUMMARY}][--formats]
               datasource_name [layer [layer ...]]
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ man ogrinfo
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogrinfo --formats | less
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogrinfo US5NH01M.000
ERROR 4: S57 Driver doesn't support update.
Had to open data source read-only.
INFO: Open of `US5NH01M.000'
      using driver `S57' successful.
1: DSID (None)
2: BCNLAT (Point)
3: BRIDGE
4: BUISGL
5: BUAARE
6: BOYLAT (Point)
7: BOYSPP (Point)
8: CBLARE (Polygon)
9: CBLOHD (Line String)
10: CTNARE
11: COALNE (Line String)
12: DAMCON
13: DAYMAR (Point)
14: DEPARE
15: DEPCNT (Line String)
16: DRGARE (Polygon)
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
-append: Append to existing layer instead of creating new if it exists
-overwrite: delete the output layer and recreate it empty
-update: Open existing output datasource in update mode
-select field_list: Comma-delimited list of fields from input layer to
                    copy to the new layer (defaults to all)
-where restricted_where: Attribute query (like SQL WHERE)
-sql statement: Execute given SQL statement and save result.
-skipfailures: skip features or layers that fail to convert
-gt n: group n features per transaction (default 200)
-spat xmin ymin xmax ymax: spatial query extents
-segmentize max_dist: maximum distance between 2 nodes.
                      Used to create intermediate points
-dsco NAME=VALUE: Dataset creation option (format specific)
-lco  NAME=VALUE: Layer creation option (format specific)
-nln name: Assign an alternate name to the new layer
-nlt type: Force a geometry type for new layer.  One of NONE, GEOMETRY,
     POINT, LINESTRING, POLYGON, GEOMETRYCOLLECTION, MULTIPOINT,
     MULTIPOLYGON, or MULTILINESTRING.  Add "25D" for 3D layers.
     Default is type of source layer.
-a_srs srs_def: Assign an output SRS
-t_srs srs_def: Reproject/transform to this SRS on output
-s_srs srs_def: Override source SRS

 Srs_def can be a full WKT definition (hard to escape properly),
 or a well known definition (ie. EPSG:4326) or a file with a WKT
 definition.
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogr2ogr -f KML US5NH01M.kml US5NH01M.000
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ less *.kml
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Applications Places System 11:48 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
<?xml version="1.0" encoding="utf-8" ?>
<kml xmlns="http://www.opengis.net/kml/2.2">
<Document><Folder><name>DSID</name>
<Schema name="DSID" id="DSID">
        <SimpleField name="Name" type="string"></SimpleField>
        <SimpleField name="Description" type="string"></SimpleField>
        <SimpleField name="DSID_EXPP" type="int"></SimpleField>
        <SimpleField name="DSID_INTU" type="int"></SimpleField>
        <SimpleField name="DSID_DSNM" type="string"></SimpleField>
        <SimpleField name="DSID_EDTN" type="string"></SimpleField>
        <SimpleField name="DSID_UPDN" type="string"></SimpleField>
        <SimpleField name="DSID_UADT" type="string"></SimpleField>
        <SimpleField name="DSID_ISDT" type="string"></SimpleField>
        <SimpleField name="DSID_STED" type="float"></SimpleField>
        <SimpleField name="DSID_PRSP" type="int"></SimpleField>
        <SimpleField name="DSID_PSDN" type="string"></SimpleField>
        <SimpleField name="DSID_PRED" type="string"></SimpleField>
        <SimpleField name="DSID_PROF" type="int"></SimpleField>
        <SimpleField name="DSID_AGEN" type="int"></SimpleField>
        <SimpleField name="DSID_COMT" type="string"></SimpleField>
        <SimpleField name="DSSI_DSTR" type="int"></SimpleField>
        <SimpleField name="DSSI_AALL" type="int"></SimpleField>
        <SimpleField name="DSSI_NALL" type="int"></SimpleField>
        <SimpleField name="DSSI_NOMR" type="int"></SimpleField>
        <SimpleField name="DSSI_NOCR" type="int"></SimpleField>
        <SimpleField name="DSSI_NOGR" type="int"></SimpleField>
        <SimpleField name="DSSI_NOLR" type="int"></SimpleField>
```

US5NH01M.kml

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

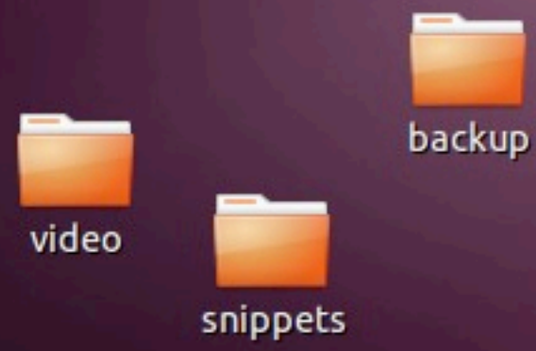
Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:48 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
      </SchemaData></ExtendedData>
      <Polygon><outerBoundaryIs><LinearRing><coordinates>-70.939959000000002,43.000233999999999 -70.939829799999998,43.000233100000003 -70.939677000000003,43.000231900000003 -70.939542299999999,43.000230899999998 -70.939409999999995,43.000230000000002 -70.938901,43.000228 -70.938906000000003,43.000225 -70.939162999999994,43.000089000000003 -70.939205,43.000067 -70.939210000000003,43.000064999999999 -70.939559599999995,43.000066799999999 -70.939749300000003,43.000067700000002 -70.939946899999995,43.000068599999999 -70.939980000000006,43.0000688 -70.940019000000007,43.000069000000003 -70.940011999999996,43.000089000000003 -70.940005999999997,43.000107999999997 -70.939969000000005,43.000210000000003 -70.939959000000002,43.000233999999999</coordinates></LinearRing></outerBoundaryIs></Polygon>
  </Placemark>
  <Placemark>
      <ExtendedData><SchemaData schemaUrl="#BRIDGE">
            <SimpleData name="RCID">58</SimpleData>
            <SimpleData name="PRIM">3</SimpleData>
            <SimpleData name="GRUP">2</SimpleData>
            <SimpleData name="OBJL">11</SimpleData>
            <SimpleData name="RVER">1</SimpleData>
            <SimpleData name="AGEN">550</SimpleData>
            <SimpleData name="FIDN">3774444</SimpleData>
            <SimpleData name="FIDS">4536</SimpleData>
            <SimpleData name="LNAM">0226003997EC11B8</SimpleData>
            <SimpleData name="CATBRG">1</SimpleData>
            <SimpleData name="SCAMIN">89999</SimpleData>
            <SimpleData name="SORDAT">20001104</SimpleData>
            <SimpleData name="SORIND">US,US,graph,Chart 13285</SimpleData>
      </SchemaData></ExtendedData>
    <Polygon><outerBoundaryIs><LinearRing><coordinates>-70.943817999999993,42.980862000000002 -70.943841000000006,42.980919 -70.943858000000006,42.980958 -70.943865000000002,42.980975999999998 -70.94404,42.98093 -70.943995,42.980823999999999
:
```




```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M

File Edit View Search Terminal Help

```
 -lco  NAME=VALUE: Layer creation option (format specific)
 -nln name: Assign an alternate name to the new layer
 -nlt type: Force a geometry type for new layer.  One of NONE, GEOMETRY,
      POINT, LINESTRING, POLYGON, GEOMETRYCOLLECTION, MULTIPOINT,
      MULTIPOLYGON, or MULTILINESTRING.  Add "25D" for 3D layers.
      Default is type of source layer.
 -a_srs srs_def: Assign an output SRS
 -t_srs srs_def: Reproject/transform to this SRS on output
 -s_srs srs_def: Override source SRS

 Srs_def can be a full WKT definition (hard to escape properly),
 or a well known definition (ie. EPSG:4326) or a file with a WKT
 definition.
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogr2ogr -f KML US5NH01M.kml US5NH01M.000
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ less *.kml
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ ogr2ogr -f CSV US5NH01M.csv US5NH01M.000
Warning 1: Attempt to create field of type StringList, but this is not supported
for .csv files.  Just treating as a plain string.
Warning 1: Attempt to create field of type IntegerList, but this is not supported
for .csv files.  Just treating as a plain string.
Warning 1: Attempt to create field of type StringList, but this is not supported
for .csv files.  Just treating as a plain string.
Warning 1: Attempt to create field of type StringList, but this is not supported
for .csv files.  Just treating as a plain string.
Warning 1: Attempt to create field of type IntegerList, but this is not supported
for .csv files.  Just treating as a plain string.
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Applications Places System 11:51 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

File Edit View Search Terminal Help

```
-rw-r--r-- 1 researchtools researchtools     9234 2011-10-25 18:19 US5NH01M.001
drwxr-xr-x 2 researchtools researchtools     4096 2011-10-27 11:48 US5NH01M.csv
-rw-r--r-- 1 researchtools researchtools 14930484 2011-10-27 11:47 US5NH01M.kml
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M$ cd US5NH01M.csv/
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ ls -l
total 400
-rw-r--r-- 1 researchtools researchtools   640 2011-10-27 11:48 BCNLAT.csv
-rw-r--r-- 1 researchtools researchtools  5521 2011-10-27 11:48 BOYLAT.csv
-rw-r--r-- 1 researchtools researchtools  3261 2011-10-27 11:48 BOYSPP.csv
-rw-r--r-- 1 researchtools researchtools  5136 2011-10-27 11:48 BRIDGE.csv
-rw-r--r-- 1 researchtools researchtools  3727 2011-10-27 11:48 BUAARE.csv
-rw-r--r-- 1 researchtools researchtools 31444 2011-10-27 11:48 BUISGL.csv
-rw-r--r-- 1 researchtools researchtools   760 2011-10-27 11:48 CBLARE.csv
-rw-r--r-- 1 researchtools researchtools  2335 2011-10-27 11:48 CBLOHD.csv
-rw-r--r-- 1 researchtools researchtools 44256 2011-10-27 11:48 COALNE.csv
-rw-r--r-- 1 researchtools researchtools   803 2011-10-27 11:48 CTNARE.csv
-rw-r--r-- 1 researchtools researchtools   354 2011-10-27 11:48 DAMCON.csv
-rw-r--r-- 1 researchtools researchtools   374 2011-10-27 11:48 DAYMAR.csv
-rw-r--r-- 1 researchtools researchtools 20724 2011-10-27 11:48 DEPARE.csv
-rw-r--r-- 1 researchtools researchtools 51592 2011-10-27 11:48 DEPCNT.csv
-rw-r--r-- 1 researchtools researchtools   914 2011-10-27 11:48 DRGARE.csv
-rw-r--r-- 1 researchtools researchtools   506 2011-10-27 11:48 DSID.csv
-rw-r--r-- 1 researchtools researchtools   521 2011-10-27 11:48 DYKCON.csv
-rw-r--r-- 1 researchtools researchtools   579 2011-10-27 11:48 FAIRWY.csv
-rw-r--r-- 1 researchtools researchtools  2607 2011-10-27 11:48 LAKARE.csv
-rw-r--r-- 1 researchtools researchtools  3746 2011-10-27 11:48 LIGHTS.csv
-rw-r--r-- 1 researchtools researchtools  4682 2011-10-27 11:48 LNDARE.csv
-rw-r--r-- 1 researchtools researchtools  2531 2011-10-27 11:48 LNDELV.csv
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Thursday, October 27, 11

Applications Places System 11:51 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

File Edit View Search Terminal Help

```
-rw-r--r-- 1 researchtools researchtools  2607 2011-10-27 11:48 LAKARE.csv
-rw-r--r-- 1 researchtools researchtools  3746 2011-10-27 11:48 LIGHTS.csv
-rw-r--r-- 1 researchtools researchtools  4682 2011-10-27 11:48 LNDARE.csv
-rw-r--r-- 1 researchtools researchtools  2531 2011-10-27 11:48 LNDELV.csv
-rw-r--r-- 1 researchtools researchtools  1329 2011-10-27 11:48 LNDMRK.csv
-rw-r--r-- 1 researchtools researchtools 24289 2011-10-27 11:48 LNDRGN.csv
-rw-r--r-- 1 researchtools researchtools   298 2011-10-27 11:48 M_COVR.csv
-rw-r--r-- 1 researchtools researchtools   241 2011-10-27 11:48 M_NPUB.csv
-rw-r--r-- 1 researchtools researchtools   246 2011-10-27 11:48 M_NSYS.csv
-rw-r--r-- 1 researchtools researchtools   952 2011-10-27 11:48 MORFAC.csv
-rw-r--r-- 1 researchtools researchtools  1335 2011-10-27 11:48 M_QUAL.csv
-rw-r--r-- 1 researchtools researchtools  4714 2011-10-27 11:48 OBSTRN.csv
-rw-r--r-- 1 researchtools researchtools   876 2011-10-27 11:48 OFSPLF.csv
-rw-r--r-- 1 researchtools researchtools  2003 2011-10-27 11:48 PILPNT.csv
-rw-r--r-- 1 researchtools researchtools   492 2011-10-27 11:48 PIPARE.csv
-rw-r--r-- 1 researchtools researchtools   611 2011-10-27 11:48 PIPSOL.csv
-rw-r--r-- 1 researchtools researchtools  2460 2011-10-27 11:48 PYLONS.csv
-rw-r--r-- 1 researchtools researchtools   513 2011-10-27 11:48 RESARE.csv
-rw-r--r-- 1 researchtools researchtools 16336 2011-10-27 11:48 RIVERS.csv
-rw-r--r-- 1 researchtools researchtools  4600 2011-10-27 11:48 SBDARE.csv
-rw-r--r-- 1 researchtools researchtools  3427 2011-10-27 11:48 SEAARE.csv
-rw-r--r-- 1 researchtools researchtools  2778 2011-10-27 11:48 SILTNK.csv
-rw-r--r-- 1 researchtools researchtools 28808 2011-10-27 11:48 SLCONS.csv
-rw-r--r-- 1 researchtools researchtools   543 2011-10-27 11:48 SMCFAC.csv
-rw-r--r-- 1 researchtools researchtools  2193 2011-10-27 11:48 SOUNDG.csv
-rw-r--r-- 1 researchtools researchtools  6040 2011-10-27 11:48 UWTROC.csv
-rw-r--r-- 1 researchtools researchtools   832 2011-10-27 11:48 WRECKS.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ less LNDARE.csv
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Thursday, October 27, 11

Applications Places System 11:52 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

File Edit View Search Terminal Help

```
RCID,PRIM,GRUP,OBJL,RVER,AGEN,FIDN,FIDS,LNAM,LNAM_REFS,FFPT_RIND,CONDTN,NOBJNM,OBJNAM,STATUS,INFORM,NINFOM,NTXTDS,SCAMAX,
SCAMIN,TXTDSC,RECDAT,RECIND,SORDAT,SORIND
1626,3,1,71,1,550,5081329,4536,0226004D88F111B8,,,,,,,,,,,,,,,
1627,3,1,71,1,550,3798052,4536,02260039F42411B8,,,,,,,,,,,,,,,
1628,3,1,71,1,550,3800174,4536,02260039FC6E11B8,,,,,,,,,,,,,,,
1629,3,1,71,1,550,3800183,4536,02260039FC7711B8,,,,,,,,,,,,,,,
1630,3,1,71,1,550,3800229,4536,02260039FCA511B8,,,,,,,,,,,,,,,
1631,3,1,71,1,550,3800187,4536,02260039FC7B11B8,,,,,,,,,,,,,,,
1632,3,1,71,1,550,3800191,4536,02260039FC7F11B8,,,,,,,,,,,,,,,
1633,1,2,71,1,550,3800230,4536,02260039FCA611B8,,,,,,,,,,119999,,,,20050700,"US,US,graph,Chart 13285"
1634,3,1,71,1,550,3800233,4536,02260039FCA911B8,,,,,,,,,,,,,,,
1635,3,1,71,1,550,3800237,4536,02260039FCAD11B8,,,,,,,,,,,,,,,
1636,3,1,71,1,550,3800240,4536,02260039FCB011B8,,,,,,,,,,,,,,,
1637,3,1,71,1,550,3800243,4536,02260039FCB311B8,,,,,,,,,,,,,,,
1638,3,1,71,1,550,3800246,4536,02260039FCB611B8,,,,,,,,,,,,,,,
1639,3,1,71,1,550,3800249,4536,02260039FCB911B8,,,,,Hen Island,,,,,,,,,,
1640,3,1,71,1,550,3800252,4536,02260039FCBC11B8,,,,,Swan Island,,,,,,,,,,
1641,3,1,71,1,550,3800255,4536,02260039FCBF11B8,,,,,,,,,,,,,,,
1642,3,1,71,1,550,3800260,4536,02260039FCC411B8,,,,,,,,,,,,,,,
1643,3,1,71,1,550,3800263,4536,02260039FCC711B8,,,,,,,,,,,,,,,
1644,3,1,71,1,550,3800266,4536,02260039FCCA11B8,,,,,,,,,,,,,,,
1645,3,1,71,1,550,3800269,4536,02260039FCCD11B8,,,,,,,,,,,,,,,
1646,3,1,71,1,550,3800272,4536,02260039FCD011B8,,,,,,,,,,,,,,,
1647,3,1,71,1,550,3800276,4536,02260039FCD411B8,,,,,,,,,,,,,,,
1648,3,1,71,1,550,3800279,4536,02260039FCD711B8,,,,,,,,,,,,,,,
1649,3,1,71,1,550,3800282,4536,02260039FCDA11B8,,,,,Nannie Island,,,,,,,,,,
1650,3,1,71,1,550,3800285,4536,02260039FCDD11B8,,,,,,,,,,,,,,,
LNDARE.csv
```

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
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--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

backup

video

snippets

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:53 AM researchtools

Accessories
Games
Graphics
Internet
Office
Other
Programming
Science
Sound & Video
System Tools
Ubuntu Software Center

Quantum GIS
Geographical Information System

untu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

rminal Help

```
researchtools  3746 2011-10-27 11:48 LIGHTS.csv
researchtools  4682 2011-10-27 11:48 LNDARE.csv
researchtools  2531 2011-10-27 11:48 LNDELV.csv
researchtools  1329 2011-10-27 11:48 LNDMRK.csv
researchtools 24289 2011-10-27 11:48 LNDRGN.csv
researchtools   298 2011-10-27 11:48 M_COVR.csv
researchtools   241 2011-10-27 11:48 M_NPUB.csv
researchtools   246 2011-10-27 11:48 M_NSYS.csv
                252 2011-10-27 11:48 MORFAC.csv
                35 2011-10-27 11:48 M_QUAL.csv
                :48 OBSTRN.csv
researchtools   876 2011-10-27 11:48 OFSPLF.csv
researchtools  2003 2011-10-27 11:48 PILPNT.csv
researchtools   492 2011-10-27 11:48 PIPARE.csv
researchtools   611 2011-10-27 11:48 PIPSOL.csv
researchtools  2460 2011-10-27 11:48 PYLONS.csv
researchtools   513 2011-10-27 11:48 RESARE.csv
researchtools 16336 2011-10-27 11:48 RIVERS.csv
researchtools  4600 2011-10-27 11:48 SBDARE.csv
researchtools  3427 2011-10-27 11:48 SEAARE.csv
researchtools  2778 2011-10-27 11:48 SILTNK.csv
researchtools 28808 2011-10-27 11:48 SLCONS.csv
researchtools   543 2011-10-27 11:48 SMCFAC.csv
researchtools  2193 2011-10-27 11:48 SOUNDG.csv
researchtools  6040 2011-10-27 11:48 UWTROC.csv
researchtools   832 2011-10-27 11:48 WRECKS.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ less LNDARE.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$
```

backup
video
snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research To... [researchto... [Chart Downl... researchtool... emacs23@u... Downloads

Applications Places System 11:54 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

New Vector Layer...	Ctrl+Shift+N
Add Vector Layer...	Ctrl+Shift+V
Add Raster Layer...	Ctrl+Shift+R
Add PostGIS Layer...	Ctrl+Shift+D
Add SpatiaLite Layer...	Ctrl+Shift+L
Add WMS Layer...	Ctrl+Shift+W
Open Attribute Table	
Toggle editing	
Save as Shapefile...	
Save Selection as Shapefile...	
Remove Layer	Ctrl+D
Properties...	
Add to Overview	Ctrl+Shift+O
Add All to Overview	
Remove All From Overview	
Hide All Layers	Ctrl+Shift+H
Show All Layers	Ctrl+Shift+U

Layers

Add a Vector Layer

Scale 1:6253709 Render

```
-rw-r--r-- 1 re                    27 11:48 SLCONS.csv
-rw-r--r-- 1 re                    27 11:48 SMCFAC.csv
-rw-r--r-- 1 re                    27 11:48 SOUNDG.csv
-rw-r--r-- 1 re                    27 11:48 UWTROC.csv
-rw-r--r-- 1 researchtools researchtools   832 2011-10-27 11:48 WRECKS.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ less LNDARE.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 11:55 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

Add vector layer

Source type

File Directory Database Protocol

Encoding : System

Source

Dataset Browse

Help Cancel Open

Coordinate: -2.28,1.26 Scale 1:6253709 Render

```
-rw-r--r-- 1 researchtools researchtools 28808 2011-10-27 11:48 SLCONS.csv
-rw-r--r-- 1 researchtools researchtools   543 2011-10-27 11:48 SMCFAC.csv
-rw-r--r-- 1 researchtools researchtools  2193 2011-10-27 11:48 SOUNDG.csv
-rw-r--r-- 1 researchtools researchtools  6040 2011-10-27 11:48 UWTROC.csv
-rw-r--r-- 1 researchtools researchtools   832 2011-10-27 11:48 WRECKS.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ less LNDARE.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 11:55 AM researchtools

Open an OGR Supported Vector Layer

researchtools class 17 ENC_ROOT US5NH01M

Places	Name	Size	Modified
Search	US5NH01M.csv		11:48
Recently Used	US5NH01M.000	1.7 MB	Tuesday
researchtools	US5NH01M.001	9.0 KB	Tuesday
File System	US5NH01M.kml	14.2 MB	11:47
Floppy Drive	US000175.TXT	507 bytes	Tuesday
snippets	US001793.TXT	793 bytes	Tuesday
	US002556.TXT	3.9 KB	Tuesday
	US003445.TXT	802 bytes	Tuesday

Add Remove

All files

Cancel Open

video snippets

```
- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 11:55 AM researchtools

Open an OGR Supported Vector Layer

researchtools class 17 ENC_ROOT US5NH01M

Places
Search
Recently Used
researchtools
File System
Floppy Drive
snippets

Name
US5NH01M.csv
US5NH01M.000
US5NH01M.001
US5NH01M.kml
US000175.TXT
US001793.TXT
US002556.TXT
US003445.TXT

[OGR] ESRI Shapefiles
[OGR] Mapinfo File
[OGR] Spatial Data Transfer Standard
[OGR] S-57 Base file
[OGR] Microstation DGN
[OGR] VRT - Virtual Datasource
[OGR] Atlas BNA
[OGR] Comma Separated Value
[OGR] Geography Markup Language
[OGR] GPX
[OGR] KML
[OGR] GeoJSON
[OGR] INTERLIS 1
[OGR] INTERLIS 2
[OGR] GMT
[OGR] SQLite
[OGR] X-Plane/Flighgear
[OGR] Arc/Info ASCII Coverage
All files

Add Remove

Cancel Open

video snippets

- What is an S57? What is a BSB?
- Why is proprietary bad?
- S10x standards

--:--- 17-qgis-gdal.org 6% L32 (Org)----------

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 11:57 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

Add vector layer

Source type

File Directory Database Protocol

Encoding : System

Source

Dataset /17/ENC_ROOT/US5NH01M/US5NH01M.000 Browse

Help Cancel Open

Coordinate: -2.28,1.26 Scale 1:6253709 Render

```
-rw-r--r-- 1 researchtools researchtools 28808 2011-10-27 11:48 SLCONS.csv
-rw-r--r-- 1 researchtools researchtools   543 2011-10-27 11:48 SMCFAC.csv
-rw-r--r-- 1 researchtools researchtools  2193 2011-10-27 11:48 SOUNDG.csv
-rw-r--r-- 1 researchtools researchtools  6040 2011-10-27 11:48 UWTROC.csv
-rw-r--r-- 1 researchtools researchtools   832 2011-10-27 11:48 WRECKS.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ less LNDARE.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 11:58 AM researchtools

Select OGR layers to load

Sub layers list

This is the list of all layers available in the datasource of the active layer. You can select the layers to load. The layers will be loaded when you press "OK".

The layer name is format dependent. Consult the OGR documentation or the documentation of your data format to determine the nature of the included information.

Be advised: selecting an already opened layer will not generate an error message and the layer will end up loaded twice!

Layer ID	Layer name	Nb of feature	Geometry type
12	DAYMAR	1	Point
13	DEPARE	295	Unknown
14	DEPCNT	507	LineString
15	DRGARE	5	Polygon
16	DYKCON	3	Unknown
17	FAIRWY	3	Polygon
18	LAKARE	23	Polygon
19	LNDARE	67	Unknown
20	LNDELV	21	Unknown
21	LNDRGN	225	Unknown

Cancel OK

File Edit Vi

Layers

Render

backup

video

snippets

```
* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 11:58 AM researchtools

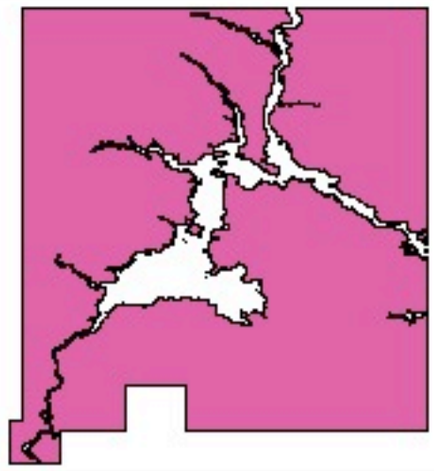
researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

LNDARE



-71.18,42.97 : -70.54,43.21 Coordinate: -2.28,1.26 Scale 1:266879 Render

```
-rw-r--r-- 1 researchtools researchtools 28808 2011-10-27 11:48 SLCONS.csv
-rw-r--r-- 1 researchtools researchtools   543 2011-10-27 11:48 SMCFAC.csv
-rw-r--r-- 1 researchtools researchtools  2193 2011-10-27 11:48 SOUNDG.csv
-rw-r--r-- 1 researchtools researchtools  6040 2011-10-27 11:48 UWTROC.csv
-rw-r--r-- 1 researchtools researchtools   832 2011-10-27 11:48 WRECKS.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ less LNDARE.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 11:58 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

LNDARE

Zoom to layer extent
Show in overview
Remove
Open attribute table
Toggle editing
Save as shapefile...
Save selection as shapefile...
Properties
Rename
Add group
Expand all
Collapse all

-71.18,42.97 : -70.54,43.21

Scale 1:266879

Render

```
-rw-r--r-- 1 researc                    1-10-27 11:48 SLCONS.csv
-rw-r--r-- 1 researc                    1-10-27 11:48 SMCFAC.csv
-rw-r--r-- 1 researc                    1-10-27 11:48 SOUNDG.csv
-rw-r--r-- 1 researc                    1-10-27 11:48 UWTROC.csv
-rw-r--r-- 1 researc                    1-10-27 11:48 WRECKS.csv
researchtools@ubuntu                   /US5NH01M.csv$ less LNDARE.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esc1895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Thursday, October 27, 11

Applications Places System 11:59 AM researchtools

Layer Properties

Legend type Single Sym Transparency: 0% New symbology

Symbol

Labels

Attribut

Genera

Metadata

Select Color

Basic colors

Custom colors

Add to Custom Colors

Hue: 120 Red: 0

Sat: 255 Green: 85

Val: 85 Blue: 0

Cancel OK

Restore Default Style Save As Default Load Style ... Save Style ...

Help Apply Cancel OK

Render

/2011/esci895-researchtools/src/

backup

video

snippets

```
* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Resear... [resear... [Chart ... researc... emacs2... Downlo... Quantu... Layer P...

Applications Places System 11:59 AM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

New Vector Layer...	Ctrl+Shift+N
Add Vector Layer...	Ctrl+Shift+V
Add Raster Layer...	Ctrl+Shift+R
Add PostGIS Layer...	Ctrl+Shift+D
Add SpatiaLite Layer...	Ctrl+Shift+L
Add WMS Layer...	Ctrl+Shift+W
Open Attribute Table	
Toggle editing	
Save as Shapefile...	
Save Selection as Shapefile...	
Remove Layer	Ctrl+D
Properties...	
Add to Overview	Ctrl+Shift+O
Add All to Overview	
Remove All From Overview	
Hide All Layers	Ctrl+Shift+H
Show All Layers	Ctrl+Shift+U

Layers

LNDAR

Scale 1:266879 Render

```
-rw-r--r-- 1 re                    27 11:48 SLCONS.csv
-rw-r--r-- 1 re                    27 11:48 SMCFAC.csv
-rw-r--r-- 1 re                    27 11:48 SOUNDG.csv
-rw-r--r-- 1 re                    27 11:48 UWTROC.csv
-rw-r--r-- 1 researchtools researchtools   832 2011-10-27 11:48 WRECKS.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ less LNDARE.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 12:00 PM researchtools

Select OGR layers to load

Sub layers list

This is the list of all layers available in the datasource of the active layer. You can select the layers to load. The layers will be loaded when you press "OK".

The layer name is format dependent. Consult the OGR documentation or the documentation of your data format to determine the nature of the included information.

Be advised: selecting an already opened layer will not generate an error message and the layer will end up loaded twice!

Layer ID	Layer name	Nb of feature	Geometry type
0	DSID	1	None
1	BCNLAT	2	Point
2	BRIDGE	37	Unknown
3	BUISGL	273	Unknown
4	BUAARE	30	Unknown
5	BOYLAT	36	Point
6	BOYSPP	15	Point
7	CBLARE	4	Polygon
8	CBLOHD	18	LineString
9	CTNARE	4	Unknown

Cancel OK

File Edit Vi

Layers

Render

backup

video

snippets

```
* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 12:00 PM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

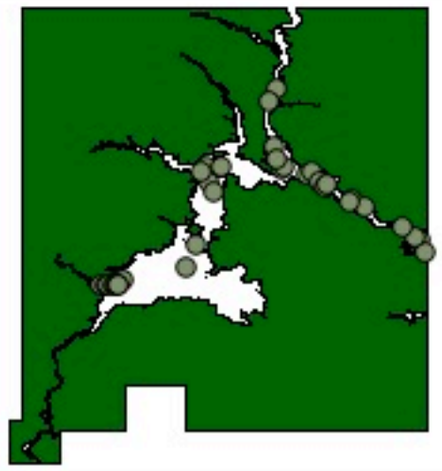
Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

BOYLAT

LNDARE



-71.18,42.97 : -70.54,43.21 Coordinate: -70.927,43.207 Scale 1:266879 Render

```
-rw-r--r-- 1 researchtools researchtools 28808 2011-10-27 11:48 SLCONS.csv
-rw-r--r-- 1 researchtools researchtools   543 2011-10-27 11:48 SMCFAC.csv
-rw-r--r-- 1 researchtools researchtools  2193 2011-10-27 11:48 SOUNDG.csv
-rw-r--r-- 1 researchtools researchtools  6040 2011-10-27 11:48 UWTROC.csv
-rw-r--r-- 1 researchtools researchtools   832 2011-10-27 11:48 WRECKS.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$ less LNDARE.csv
researchtools@ubuntu:~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv$
```

backup

video

snippets

```
wget http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/src/
#+END_SRC

* Getting NOAA charts

- What is an S57?  What is a BSB?
- Why is proprietary bad?
- S10x standards

--:---  17-qgis-gdal.org    6% L32    (Org)----------
```

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 12:01 PM researchtools

Quantum GIS 1.4.0-Enceladus

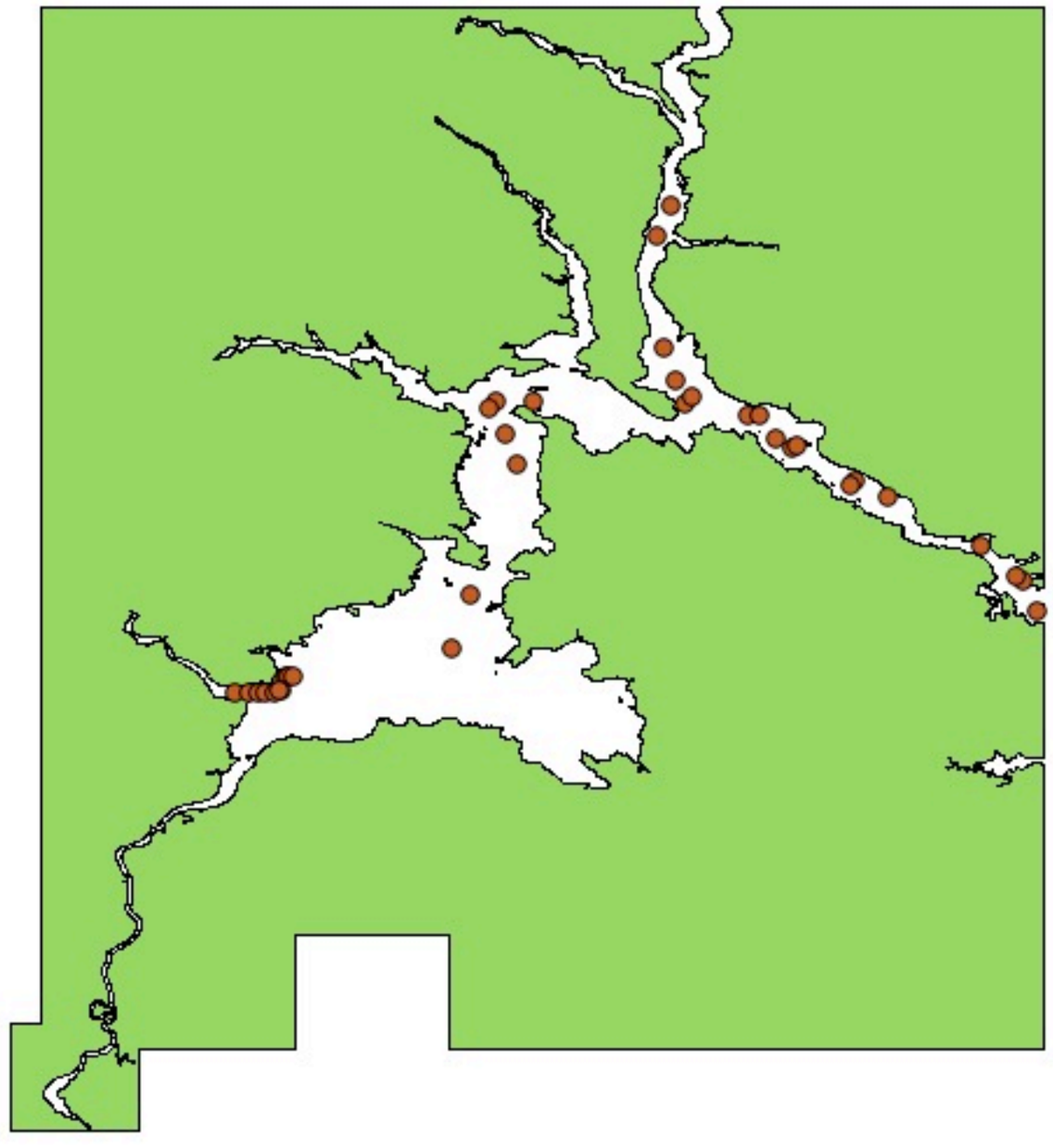
File Edit View Layer Plugins Vector Help

Identify Features

Layers

BOYLAT

LNDARE



Click on features to identify them

Coordinate: -70.9005,43.2045 Scale 1:100338 Render

Research … [research… [Chart Do… researcht… emacs23… Downloads Quantum …

Thursday, October 27, 11

Applications Places System 12:01 PM researchtools

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

BOYLAT

LNDARE

Identify Results

Feature	Value
BOYLAT	Layer
RCID	49
(Actions)	
(Derived)	
AGEN	550
BOYSHP	1
CATLAM	2
COLOUR	3
COLPAT	NULL
CONRAD	NULL
DATEND	NULL
DATSTA	NULL
FEPT_RIND	NULL

Help Close

Coordinate: -70.8290,43.1321 Scale 1:100338 Render

Research ... [research... [Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 12:06 PM researchtools

researchtools@ubuntu: ~/class/17/ENC_ROOT/US5NH01M/US5NH01M.csv

File Edit View Search Terminal H

```
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
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-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
-rw-r--r-- 1 researchtools researc
researchtools@ubuntu:~/class/17/EN
researchtools@ubuntu:~/class/17/EN
```

backup

video

snippets

emacs23@ubuntu

File Edit Options Buffers Tools Org Tbl Help

```
* Start QGIS and view the data

- Applications -> Science -> Quantum GIS
- Layer -> Add Vector Layer.  Browse
  - researchtools/class/17/ENC_ROOT/US5NH01M
  - Change the type selection to "All Files"
  - Select US5NH01M.000
  - From the "Sub layers list", select Layer id 19, LNDARE.
- Repeat opening the S57 chart and select "5 BOYLAT"
- Use the Arrow-i "Identify Feature" button to select buoys
- Right click on the "BOYLAT" layer and select properties.
  - change the symbol
- Right click on LNDARE and select properties
  - change the color

* Getting a raster navigation chart (RNC) - BSB

- The dangers of proprietary formats and what NOAA had to go through.  Yuck.

- http://www.charts.noaa.gov/RNCs/RNCs.shtml
- http://www.charts.noaa.gov/RNCs/Download

#+BEGIN_SRC sh
cd ~/class/17
wget http://www.charts.noaa.gov/RNCs/NH_RNCs.zip
ls -l NH_RNCs.zip

md5sum NH_RNCs.zip
# 52193d8561302805b35af2da62149502  NH_RNCs.zip
sha256sum NH_RNCs.zip
# ca996f7958026fc7d1c26f27bb8dbb8f887a998892b1d9b369bfb9adc86dfe78 NH_RNCs.zip
```

--:--- **17-qgis-gdal.org** 45% L178 (Org)----------

Research ... [research... [Chart Do... researcht... emacs23... Downloads [Quantum...

Chart Downloader for NOAA RNCs™. - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Index of /~schwehr/rt | Nautical Charts & Pubs | Chart Downloader for N... | Chart Downloader for N...

www.charts.noaa.gov/RNCs/RNCs.shtml

Most Visited Getting Started Latest Headlines

There are several options for downloading:

1. Select a zip file of an **Individual RNC**.
2. Select up to twenty **Specific RNCs** that will be dynamically zipped and made available for download.
3. Write an application or script that uses the data in the **RNC Product Catalog**, an XML file that contains the status of the RNCs available for download.
4. Select one of the pre-packaged zip files below:

All RNCs:

Name	XML	Size	Zip File Date Time*
All	View	2017 MB	10/20/2011 17:01:24

RNCs by Coast Guard Districts (map):

Name	XML	Size	Zip File Date Time*		Name	XML	Size	Zip File Date Time*		Name	XML	Size	Zip File Date Time*
01 CGD	View	332 MB	10/20/2011 17:05:30		05 CGD	View	201 MB	10/20/2011 17:07:59		07 CGD	View	258 MB	10/20/2011 17:10:55
08 CGD	View	199 MB	10/20/2011 17:13:09		09 CGD	View	261 MB	10/20/2011 17:16:25		11 CGD	View	133 MB	10/20/2011 17:18:18
13 CGD	View	177 MB	10/20/2011 17:20:25		14 CGD	View	81 MB	10/20/2011 17:21:31		17 CGD	View	472 MB	10/20/2011 17:27:08

RNCs by States:

Name	XML	Size	Zip File Date Time*		Name	XML	Size	Zip File Date Time*		Name	XML	Size	Zip File Date Time*
AK	View	472 MB	10/20/2011 17:33:00		AL	View	22 MB	10/20/2011 17:33:52		CA	View	128 MB	10/20/2011 17:35:16
CT	View	55 MB	10/20/2011 17:35:57		DE	View	17 MB	10/20/2011 17:36:11		FL	View	193 MB	10/20/2011 17:38:19
GA	View	38 MB	10/20/2011 17:38:53		HI	View	52 MB	10/20/2011 17:39:31		ID	View	4 MB	10/20/2011 17:39:39
IL	View	20 MB	10/20/2011 17:39:54		IN	View	18 MB	10/20/2011 17:40:05		LA	View	93 MB	10/20/2011 17:41:10
MA	View	98 MB	10/20/2011 17:42:24		MD	View	62 MB	10/20/2011 17:43:16		ME	View	115 MB	10/20/2011 17:44:27
MI	View	130 MB	10/20/2011 17:46:11		MN	View	27 MB	10/20/2011 17:46:42		MS	View	26 MB	10/20/2011 17:47:01
NC	View	53 MB	10/20/2011 17:47:41		NH	View	27 MB	10/20/2011 17:48:00		NJ	View	64 MB	10/20/2011 17:48:37
NV	View	5 MB	10/20/2011 17:48:44		NY	View	144 MB	10/20/2011 17:50:08		OH	View	40 MB	10/20/2011 17:50:46
OR	View	64 MB	10/20/2011 17:51:32		PA	View	17 MB	10/20/2011 17:51:44		PO	View	38 MB	10/20/2011 17:52:10

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

Applications Places System 12:11 PM researchtools

researchtools@ubuntu: ~/class/17

File Edit View Search Terminal Help

```
researchtools@ubuntu:~/class/17$ wget http://www.charts.noaa.gov/RNCs/NH_RNCs.zip
--2011-10-27 12:08:49--  http://www.charts.noaa.gov/RNCs/NH_RNCs.zip
Resolving www.charts.noaa.gov... 140.172.17.23, 129.15.96.23, 140.90.33.23, ...
Connecting to www.charts.noaa.gov|140.172.17.23|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 26861545 (26M) [application/zip]
Saving to: `NH_RNCs.zip'

100%[======================================================================>] 26,861,545  1.03M/s   in 36s

2011-10-27 12:09:25 (738 KB/s) - `NH_RNCs.zip' saved [26861545/26861545]

researchtools@ubuntu:~/class/17$ unzip -l -v NH_RNCs.zip
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
PR	View	36 MB	10/20/2011 17:5
TX	View	74 MB	10/20/2011 17:5
WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

- http://www.charts.noaa.gov/RNCs/RNCs.shtml
- http://www.charts.noaa.gov/RNCs/Download

```
#+BEGIN_SRC sh
cd ~/class/17
wget http://www.charts.noaa.gov/RNCs/NH_RNCs.zip
ls -l NH_RNCs.zip

md5sum NH_RNCs.zip
# 52193d8561302805b35af2da62149502  NH_RNCs.zip
sha256sum NH_RNCs.zip
# ca996f7958026fc7d1c26f27bb8dbb8f887a998892b1d9b369bfb9adc86dfe78 NH_RNCs.zip

unzip -l -v NH_RNCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_RNCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
```

--:--- **17-qgis-gdal.org** 46% L193 (Org)----------

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

Applications Places System 12:13 PM researchtools

researchtools@ubuntu: ~/class/17

File Edit View Search Terminal Help

```
--2011-10-27 12:08:49--  http://www.charts.noaa.gov/RNCs/NH_RNCs.zip
Resolving www.charts.noaa.gov... 140.172.17.23, 129.15.96.23, 140.90.33.23, ...
Connecting to www.charts.noaa.gov|140.172.17.23|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 26861545 (26M) [application/zip]
Saving to: `NH_RNCs.zip'

100%[======================================>] 26,861,545  1.03M/s   in 36s

2011-10-27 12:09:25 (738 KB/s) - `NH_RNCs.zip' saved [26861545/26861545]

researchtools@ubuntu:~/class/17$ #unzip -l -v NH_RNCs.zip
researchtools@ubuntu:~/class/17$ md5sum NH_RNCs.zip
95d46f75567a2cd60088881668a75031  NH_RNCs.zip
researchtools@ubuntu:~/class/17$ md5sum ~/Dropbox/rt/class/17/NH_RNCs.zip
52193d8561302805b35af2da62149502  /home/researchtools/Dropbox/rt/class/17/NH_RNCs.zip
researchtools@ubuntu:~/class/17$ unzip -l -v NH_RNCs.zip
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
PR	View	36 MB	10/20/2011 17:5
TX	View	74 MB	10/20/2011 17:5
WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

- http://www.charts.noaa.gov/RNCs/RNCs.shtml
- http://www.charts.noaa.gov/RNCs/Download

```
#+BEGIN_SRC sh
cd ~/class/17
wget http://www.charts.noaa.gov/RNCs/NH_RNCs.zip
ls -l NH_RNCs.zip

md5sum NH_RNCs.zip
# 52193d8561302805b35af2da62149502  NH_RNCs.zip
sha256sum NH_RNCs.zip
# ca996f7958026fc7d1c26f27bb8dbb8f887a998892b1d9b369bfb9adc86dfe78 NH_RNCs.zip

unzip -l -v NH_RNCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_RNCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
```

--:--- **17-qgis-gdal.org** 46% L193 (Org)----------

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

Applications Places System 12:14 PM researchtools

researchtools@ubuntu: ~/class/17

File Edit View Search Terminal Help

```
   7837  Defl:N     2298  71% 2011-10-27 08:35 61739b64  BSB_ROOT/13006/13006.BSB
6482514  Defl:N  3664585  44% 2011-10-27 08:35 6fd27664  BSB_ROOT/13006/13006_1.KAP
   7130  Defl:N     2124  70% 2011-10-27 08:35 ce6fc8ca  BSB_ROOT/13009/13009.BSB
4315213  Defl:N  2282401  47% 2011-10-27 08:35 8e86c6ab  BSB_ROOT/13009/13009_1.KAP
   7496  Defl:N     2285  70% 2011-10-27 08:35 b3f3f679  BSB_ROOT/13260/13260.BSB
7434862  Defl:N  4457951  40% 2011-10-27 08:35 434c91f5  BSB_ROOT/13260/13260_1.KAP
  12525  Defl:N     3618  71% 2011-10-27 08:35 af5238e4  BSB_ROOT/13274/13274.BSB
1454473  Defl:N   865499  41% 2011-10-27 08:35 fec73dfe  BSB_ROOT/13274/13274_1.KAP
1337453  Defl:N   779397  42% 2011-10-27 08:35 81835871  BSB_ROOT/13274/13274_2.KAP
  86989  Defl:N    48068  45% 2011-10-27 08:35 e406b6e0  BSB_ROOT/13274/13274_3.KAP
  69890  Defl:N    38400  45% 2011-10-27 08:35 29bf4589  BSB_ROOT/13274/13274_4.KAP
3566436  Defl:N  1998146  44% 2011-10-27 08:35 8ffd6ad5  BSB_ROOT/13274/13274_5.KAP
   7079  Defl:N     2170  69% 2011-10-27 08:35 dae42737  BSB_ROOT/13278/13278.BSB
4706920  Defl:N  2705537  43% 2011-10-27 08:35 d9617bab  BSB_ROOT/13278/13278_1.KAP
 245982  Defl:N   124594  49% 2011-10-27 08:35 aaa54985  BSB_ROOT/13278/13278_2.KAP
   7874  Defl:N     2302  71% 2011-10-27 08:35 c90a53c1  BSB_ROOT/13283/13283.BSB
3724783  Defl:N  1984349  47% 2011-10-27 08:35 d5c3aa5f  BSB_ROOT/13283/13283_1.KAP
 550331  Defl:N   311825  43% 2011-10-27 08:35 69f85c8b  BSB_ROOT/13283/13283_2.KAP
 263272  Defl:N   138586  47% 2011-10-27 08:35 2a21d359  BSB_ROOT/13283/13283_3.KAP
   4648  Defl:N     1612  65% 2011-10-27 08:35 c31d3df5  BSB_ROOT/13285/13285.BSB
5289370  Defl:N  2690369  49% 2011-10-27 08:35 c8cba981  BSB_ROOT/13285/13285_1.KAP
 117150  Defl:N    60308  49% 2011-10-27 08:35 e4098680  BSB_ROOT/13285/13285_2.KAP
   7146  Defl:N     2243  69% 2011-10-27 08:35 c4fde5ea  BSB_ROOT/13286/13286.BSB
3996964  Defl:N  2100624  48% 2011-10-27 08:35 16e60ac6  BSB_ROOT/13286/13286_1.KAP
  86867  Defl:N    40189  54% 2011-10-27 08:35 68b3938e  BSB_ROOT/13286/13286_2.KAP
 377391  Defl:N   197053  48% 2011-10-27 08:35 74bb736b  BSB_ROOT/13286/13286_3.KAP
 224952  Defl:N   100451  55% 2011-10-27 08:35 e605e5b9  BSB_ROOT/13286/13286_4.KAP
 272822  Defl:N   138474  49% 2011-10-27 08:35 0fd8bda2  BSB_ROOT/13286/13286_5.KAP
--------          -------  ---                            -------
48872622         26857591  45%                            31 files
researchtools@ubuntu:~/class/17$ unzip NH
```

WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

```
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_RNCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
--:---  17-qgis-gdal.org    46% L193    (Org)----------------------------------------
```

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

Applications Places System 12:17 PM researchtools

researchtools@ubuntu: ~/class/17/BSB_ROOT

File Edit View Search Terminal Help

```
4.1M    BSB_ROOT/13003
7.2M    BSB_ROOT/13260
4.2M    BSB_ROOT/13009
6.3M    BSB_ROOT/13274
5.2M    BSB_ROOT/13285
4.4M    BSB_ROOT/13283
4.8M    BSB_ROOT/13278
6.2M    BSB_ROOT/13006
4.8M    BSB_ROOT/13286
47M     BSB_ROOT/
researchtools@ubuntu:~/class/17$ cd BSB_ROOT/
researchtools@ubuntu:~/class/17/BSB_ROOT$ find . | xargs file | cut -d: -f2 | sort -u
   ASCII English text, with CRLF line terminators
 data
            directory
                 directory
 Non-ISO extended-ASCII English text, with very long lines, with CRLF line terminators
researchtools@ubuntu:~/class/17/BSB_ROOT$
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
PR	View	36 MB	10/20/2011 17:5
TX	View	74 MB	10/20/2011 17:5
WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

- http://www.charts.noaa.gov/RNCs/Download

```
#+BEGIN_SRC sh
cd ~/class/17
wget http://www.charts.noaa.gov/RNCs/NH_RNCs.zip
ls -l NH_RNCs.zip

md5sum NH_RNCs.zip
# 52193d8561302805b35af2da62149502  NH_RNCs.zip
sha256sum NH_RNCs.zip
# ca996f7958026fc7d1c26f27bb8dbb8f887a998892b1d9b369bfb9adc86dfe78 NH_RNCs.zip

unzip -l -v NH_RNCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_RNCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
```

--:--- **17-qgis-gdal.org** 46% L193 (Org)----------

Research … [research… Chart Do… researcht… emacs23… Downloads [Quantum…

researchtools@ubuntu: ~/class/17/BSB_ROOT/13274

File Edit View Search Terminal Help

```
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13009
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13260
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13274
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13278
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13283
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13285
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13286
-rw-r--r-- 1 researchtools researchtools 5897 2011-10-27 08:35 USERAGREEMENT.TXT
researchtools@ubuntu:~/class/17/BSB_ROOT$ cd 13274
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ ls -l
total 6392
-rw-r--r-- 1 researchtools researchtools 1454473 2011-10-27 08:35 13274_1.KAP
-rw-r--r-- 1 researchtools researchtools 1337453 2011-10-27 08:35 13274_2.KAP
-rw-r--r-- 1 researchtools researchtools   86989 2011-10-27 08:35 13274_3.KAP
-rw-r--r-- 1 researchtools researchtools   69890 2011-10-27 08:35 13274_4.KAP
-rw-r--r-- 1 researchtools researchtools 3566436 2011-10-27 08:35 13274_5.KAP
-rw-r--r-- 1 researchtools researchtools   12525 2011-10-27 08:35 13274.BSB
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
PR	View	36 MB	10/20/2011 17:5
TX	View	74 MB	10/20/2011 17:5
WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

- http://www.charts.noaa.gov/RNCs/Download

```
#+BEGIN_SRC sh
cd ~/class/17
wget http://www.charts.noaa.gov/RNCs/NH_RNCs.zip
ls -l NH_RNCs.zip

md5sum NH_RNCs.zip
# 52193d8561302805b35af2da62149502  NH_RNCs.zip
sha256sum NH_RNCs.zip
# ca996f7958026fc7d1c26f27bb8dbb8f887a998892b1d9b369bfb9adc86dfe78 NH_RNCs.zip

unzip -l -v NH_RNCs.zip
#+END_SRC

#+BEGIN_EXAMPLE
Archive:  NH_RNCs.zip
 Length   Method    Size  Cmpr    Date    Time   CRC-32   Name
--------  ------  ------- ---- ---------- ----- --------  ----
```

--:--- **17-qgis-gdal.org** 46% L193 (Org)----------

Applications Places System 12:18 PM researchtools

researchtools@ubuntu: ~/class/17/BSB_ROOT/13274

File Edit View Search Terminal Help

```
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13009
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13260
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13274
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13278
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13283
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13285
drwxr-xr-x 2 researchtools researchtools 4096 2011-10-27 12:14 13286
-rw-r--r-- 1 researchtools researchtools 5897 2011-10-27 08:35 USERAGREEMENT.TXT
researchtools@ubuntu:~/class/17/BSB_ROOT$ cd 13274
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ ls -l
total 6392
-rw-r--r-- 1 researchtools researchtools 1454473 2011-10-27 08:35 13274_1.KAP
-rw-r--r-- 1 researchtools researchtools 1337453 2011-10-27 08:35 13274_2.KAP
-rw-r--r-- 1 researchtools researchtools   86989 2011-10-27 08:35 13274_3.KAP
-rw-r--r-- 1 researchtools researchtools   69890 2011-10-27 08:35 13274_4.KAP
-rw-r--r-- 1 researchtools researchtools 3566436 2011-10-27 08:35 13274_5.KAP
-rw-r--r-- 1 researchtools researchtools   12525 2011-10-27 08:35 13274.BSB
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ less 13
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
PR	View	36 MB	10/20/2011 17:5
TX	View	74 MB	10/20/2011 17:5
WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

```
#+BEGIN_SRC sh
unzip NH_RNCs.zip
du -h BSB_ROOT
cd BSB_ROOT
find . | xargs file | cut -d: -f2- | sort -u
du -ks * | sort -n
ls -l 13274
#+END_SRC

KAP is the actual image.  The BSB is metadata.

#+BEGIN_SRC sh
ls -l 13274
less 13274/*.BSB
grep CHT */*.BSB
#+END_SRC

#+BEGIN_EXAMPLE
--:---  17-qgis-gdal.org   53% L232   (Org)----------
```

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

researchtools@ubuntu: ~/class/17/BSB_ROOT/13274

File Edit View Search Terminal Help

```
!
CRR/This electronic chart was produced under the authority of USA-NOAA/NOS.
    By using this chart you acknowledge that you have read, understood
    and accepted the terms and conditions stated in the User Agreement:
    http://www.nauticalcharts.noaa.gov/mcd/Raster/download_agreement.htm
CHT/NA=CAPE ANN TO HAMPTON HARBOR SIDE A LEFT,NU=13274
CHF/SMALL CRAFT ROUTE, IWW ROUTE
CED/SE=28,RE=01,ED=04/01/2011
NTM/NE=28.15,ND=10/22/2011
VER/3.0
CHK/1,2074,2075,2076,2077,2078
CGD/1
ORG/USA-NOAA/NOS
MFR/USA-NOAA/NOS
RGN/2
K01/NA=CAPE ANN TO HAMPTON HARBOR SIDE A LEFT,NU=2074,TY=BASE,FN=13274_1.KAP
K02/NA=MERRIMACK RIVER EXT.   HAVERHILL,NU=2075,TY=EXTENSION,FN=13274_3.KAP
13274.BSB
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
PR	View	36 MB	10/20/2011 17:5
TX	View	74 MB	10/20/2011 17:5
WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

```
#+BEGIN_SRC sh
unzip NH_RNCs.zip
du -h BSB_ROOT
cd BSB_ROOT
find . | xargs file | cut -d: -f2- | sort -u
du -ks * | sort -n
ls -l 13274
#+END_SRC

KAP is the actual image.  The BSB is metadata.

#+BEGIN_SRC sh
ls -l 13274
less 13274/*.BSB
grep CHT */*.BSB
#+END_SRC

#+BEGIN_EXAMPLE
--:---  17-qgis-gdal.org   53% L232   (Org)----------
```

researchtools@ubuntu: ~/class/17/BSB_ROOT

File Edit View Search Terminal Help

```
-rw-r--r-- 1 researchtools researchtools 1337453 2011-10-27 08:35 13274_2.KAP
-rw-r--r-- 1 researchtools researchtools   86989 2011-10-27 08:35 13274_3.KAP
-rw-r--r-- 1 researchtools researchtools   69890 2011-10-27 08:35 13274_4.KAP
-rw-r--r-- 1 researchtools researchtools 3566436 2011-10-27 08:35 13274_5.KAP
-rw-r--r-- 1 researchtools researchtools   12525 2011-10-27 08:35 13274.BSB
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ less 13274.BSB
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ cd ..
researchtools@ubuntu:~/class/17/BSB_ROOT$ find . | xargs grep CHT
./13003/13003.BSB:CHT/NA=CAPE SABLE TO CAPE HATTERAS,NU=13003
./13260/13260.BSB:CHT/NA=BAY OF FUNDY - CAPE COD ME-NH-MA,NU=13260
./13009/13009.BSB:CHT/NA=GULF OF MAINE AND GEORGES BANK,NU=13009
./13274/13274.BSB:CHT/NA=CAPE ANN TO HAMPTON HARBOR SIDE A LEFT,NU=13274
./13285/13285.BSB:CHT/NA=PORTSMOUTH TO DOVER AND EXETER,NU=13285
./13283/13283.BSB:CHT/NA=PORTSMOUTH HBR CAPE NEDDICK HBR TO ISLES OF SHOALS,NU=13283
./13278/13278.BSB:CHT/NA=PORTSMOUTH TO CAPE ANN  NH-MA-ME,NU=13278
./13006/13006.BSB:CHT/NA=WEST QUODDY HEAD TO NEW YORK-EAST COAST,NU=13006
./13286/13286.BSB:CHT/NA=CAPE ELIZABETH TO PORTSMOUTH,NU=13286
researchtools@ubuntu:~/class/17/BSB_ROOT$
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
PR	View	36 MB	10/20/2011 17:5
TX	View	74 MB	10/20/2011 17:5
WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

```
#+BEGIN_SRC sh
unzip NH_RNCs.zip
du -h BSB_ROOT
cd BSB_ROOT
find . | xargs file | cut -d: -f2- | sort -u
du -ks * | sort -n
ls -l 13274
#+END_SRC

KAP is the actual image.  The BSB is metadata.

#+BEGIN_SRC sh
ls -l 13274
less 13274/*.BSB
grep CHT */*.BSB
#+END_SRC

#+BEGIN_EXAMPLE
--:---  17-qgis-gdal.org   53% L232   (Org)----------
```

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

```
researchtools@ubuntu: ~/class/17/BSB_ROOT/13274
File  Edit  View  Search  Terminal  Help
./13278/13278.BSB:CHT/NA=PORTSMOUTH TO CAPE ANN  NH-MA-ME,NU=13278
./13006/13006.BSB:CHT/NA=WEST QUODDY HEAD TO NEW YORK-EAST COAST,NU=13006
./13286/13286.BSB:CHT/NA=CAPE ELIZABETH TO PORTSMOUTH,NU=13286
researchtools@ubuntu:~/class/17/BSB_ROOT$ cd 13274
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ clear

researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ gdalinfo --formats
Supported Formats:
  VRT (rw+): Virtual Raster
  GTiff (rw+): GeoTIFF
  NITF (rw+): National Imagery Transmission Format
  RPFTOC (ro): Raster Product Format TOC format
  HFA (rw+): Erdas Imagine Images (.img)
  SAR_CEOS (ro): CEOS SAR Image
  CEOS (ro): CEOS Image
  JAXAPALSAR (ro): JAXA PALSAR Product Reader (Level 1.1/1.5)
  GFF (ro): Ground-based SAR Applications Testbed File Format (.gff)
  ELAS (rw+): ELAS
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
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cd BSB_ROOT
find . | xargs file | cut -d: -f2- | sort -u
du -ks * | sort -n
ls -l 13274
#+END_SRC

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#+BEGIN_SRC sh
ls -l 13274
less 13274/*.BSB
grep CHT */*.BSB
#+END_SRC

#+BEGIN_EXAMPLE
--:---  17-qgis-gdal.org   53% L232   (Org)----------
```

Applications Places System 12:22 PM researchtools

researchtools@ubuntu: ~/class/17/BSB_ROOT/13274

File Edit View Search Terminal Help

```
13274_1.KAP  13274_2.KAP  13274_3.KAP  13274_4.KAP  13274_5.KAP  13274.BSB
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ gdalinfo 13274_1.KAP
Driver: BSB/Maptech BSB Nautical Charts
Files: 13274_1.KAP
Size is 7543, 3912
Coordinate System is `'
GCP Projection = PROJCS["Global Mercator",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563]],P
RIMEM["Greenwich",0],UNIT["degree",0.01745329251994328]],PROJECTION["Mercator_2SP"],PARAMETER["standard_parallel_1",0]
,PARAMETER["latitude_of_origin",0],PARAMETER["central_meridian",-70],PARAMETER["false_easting",0],PARAMETER["false_nor
thing",0],UNIT["Meter",1]]
GCP[  0]: Id=GCP_1, Info=
        (129,3829) -> (-68558.8913923087,5235404.38914474,0)
GCP[  1]: Id=GCP_2, Info=
        (129,2634) -> (-74213.9215246061,5232226.59286988,0)
GCP[  2]: Id=GCP_3, Info=
        (6,2565) -> (-74214.8491833188,5231456.92728109,0)
GCP[  3]: Id=GCP_4, Info=
        (129,2343) -> (-75589.9541178975,5231451.06180886,0)
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
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RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
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cd BSB_ROOT
find . | xargs file | cut -d: -f2- | sort -u
du -ks * | sort -n
ls -l 13274
#+END_SRC

KAP is the actual image.  The BSB is metadata.

#+BEGIN_SRC sh
ls -l 13274
less 13274/*.BSB
grep CHT */*.BSB
#+END_SRC

#+BEGIN_EXAMPLE
--:---  17-qgis-gdal.org   53% L232   (Org)----------
```

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

Applications Places System 12:24 PM researchtools

researchtools@ubuntu: ~/class/17/BSB_ROOT/13274

File Edit View Search Terminal Help

```
    2: 219,73,150,255
    3: 94,153,193,255
    4: 150,176,155,255
    5: 114,114,114,255
    6: 145,145,145,255
    7: 214,219,201,255
    8: 244,232,193,255
    9: 209,221,239,255
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ gdal_translate -of PNG 13274_1.KAP 13274_1.png
Input file size is 7543, 3912
0...10...20...30...40...50...60...70...80...90...100 - done.
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ gdal_translate -of PNG 13274_2.KAP 13274_2.png
Input file size is 7683, 3831
0...10...20...30...40...50...60...70...80...90...100 - done.
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ gdal_translate -of PNG 13274_3.KAP 13274_3.png
Input file size is 627, 1402
0...10...20...30...40...50...60...70...80...90...100 - done.
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ ls -l
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
OR	View	64 MB	10/20/2011 17:5
PR	View	36 MB	10/20/2011 17:5
TX	View	74 MB	10/20/2011 17:5
WA	View	151 MB	10/20/2011 17:5

RNCs by Region (list):

Name	XML	Size	Zip File Date Ti
02	View	207 MB	10/20/2011 18:0
06	View	133 MB	10/20/2011 18:0

```
#+BEGIN_SRC sh
unzip NH_RNCs.zip
du -h BSB_ROOT
cd BSB_ROOT
find . | xargs file | cut -d: -f2- | sort -u
du -ks * | sort -n
ls -l 13274
#+END_SRC

KAP is the actual image.  The BSB is metadata.

#+BEGIN_SRC sh
ls -l 13274
less 13274/*.BSB
grep CHT */*.BSB
#+END_SRC

#+BEGIN_EXAMPLE
--:---  17-qgis-gdal.org   53% L232   (Org)----------
```

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

Applications Places System 12:25 PM researchtools

researchtools@ubuntu: ~/class/17/BSB_ROOT/13274

File Edit View Search Terminal Help

```
Input file size is 627, 1402
0...10...20...30...40...50...60...70...80...90...100 - done.
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ ls -l
total 8560
-rw-r--r-- 1 researchtools researchtools 1454473 2011-10-27 08:35 13274_1.KAP
-rw-r--r-- 1 researchtools researchtools 1127790 2011-10-27 12:24 13274_1.png
-rw-r--r-- 1 researchtools researchtools   10245 2011-10-27 12:24 13274_1.png.aux.xml
-rw-r--r-- 1 researchtools researchtools 1337453 2011-10-27 08:35 13274_2.KAP
-rw-r--r-- 1 researchtools researchtools 1015550 2011-10-27 12:24 13274_2.png
-rw-r--r-- 1 researchtools researchtools    9511 2011-10-27 12:24 13274_2.png.aux.xml
-rw-r--r-- 1 researchtools researchtools   86989 2011-10-27 08:35 13274_3.KAP
-rw-r--r-- 1 researchtools researchtools   44953 2011-10-27 12:24 13274_3.png
-rw-r--r-- 1 researchtools researchtools    3686 2011-10-27 12:24 13274_3.png.aux.xml
-rw-r--r-- 1 researchtools researchtools   69890 2011-10-27 08:35 13274_4.KAP
-rw-r--r-- 1 researchtools researchtools 3566436 2011-10-27 08:35 13274_5.KAP
-rw-r--r-- 1 researchtools researchtools   12525 2011-10-27 08:35 13274.BSB
researchtools@ubuntu:~/class/17/BSB_ROOT/13274$ display *.png
```

CT	View	55 MB	10/20/2011 17:3
GA	View	38 MB	10/20/2011 17:3
IL	View	20 MB	10/20/2011 17:3
MA	View	98 MB	10/20/2011 17:4
MI	View	130 MB	10/20/2011 17:4
NC	View	53 MB	10/20/2011 17:4
NV	View	5 MB	10/20/2011 17:4
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```
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du -h BSB_ROOT
cd BSB_ROOT
find . | xargs file | cut -d: -f2- | sort -u
du -ks * | sort -n
ls -l 13274
#+END_SRC

KAP is the actual image.  The BSB is metadata.

#+BEGIN_SRC sh
ls -l 13274
less 13274/*.BSB
grep CHT */*.BSB
#+END_SRC

#+BEGIN_EXAMPLE
--:---  17-qgis-gdal.org   53% L232   (Org)----------
```

Research ... [research... Chart Do... researcht... emacs23... Downloads [Quantum...

Applications Places System 12:25 PM researchtools

ImageMagick: 13274_1.png

Pan

Commands

Image Magick

File

Edit

View

Transform

Enhance

Effects

F/X

Image Edit

Miscellany

Help

Half Size

Original Size

Double Size

Resize...

Apply

Refresh

Restore

Crane Beach

IPSWICH
Oc 4s 30ft 5M

Bass Rk

RW "BR"
Rks rep
(1985)

R
N "10"

R
N "8A"

Foul

Foul

Kelp

Marsh

Resear... [resear... Chart D... researc... emacs2... Downlo... [Quant... 13274_...

Thursday, October 27, 11

Applications Places System 12:27 PM researchtools

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

BOYLAT

LNDARE

Save?

Do you want to save the current project?

Close without Saving | Cancel | Save

Coordinate: -70.8364,43.1064 Scale 1:28376 Render

Research ... [research... Chart Do... researcht... emacs23... Downloads Quantum ...

Thursday, October 27, 11

Applications Places System 12:27 PM researchtools

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

New Vector Layer... Ctrl+Shift+N
Add Vector Layer... Ctrl+Shift+V
Add Raster Layer... Ctrl+Shift+R
Add PostGIS Layer... Ctrl+Shift+D
Add SpatiaLite Layer... Ctrl+Shift+L
Add WMS Layer... Ctrl+Shift+W

Open Attribute Table
Toggle editing
Save as Shapefile...
Save Selection as Shapefile...
Remove Layer Ctrl+D
Properties...

Add to Overview Ctrl+Shift+O
Add All to Overview
Remove All From Overview

Hide All Layers Ctrl+Shift+H
Show All Layers Ctrl+Shift+U

Add a Vector Layer Coordinate: -70.8484,43.1464 Scale 1:28376 Render

Research ... [research... Chart Do... researcht... emacs23... Downloads Quantum ...

Applications Places System 12:28 PM researchtools

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

Open a GDAL Supported Raster Data Source

researchtools class 17 BSB_ROOT 13274

Places	Name	Size	Modified
Search	13274.BSB	12.2 KB	08:35
Recently Used	13274_1.KAP	1.4 MB	08:35
researchtools	13274_1.png	1.1 MB	12:24
File System	13274_1.png.aux.xml	10.0 KB	12:24
Floppy Drive	13274_2.KAP	1.3 MB	08:35
snippets	13274_2.png	991.7 KB	12:24
	13274_2.png.aux.xml	9.3 KB	12:24
	13274_3.KAP	85.0 KB	08:35
	13274_3.png	43.9 KB	12:24
	13274_3.png.aux.xml	3.6 KB	12:24
	13274_4.KAP	68.3 KB	08:35
	13274_5.KAP	3.4 MB	08:35

Add Remove All other files

Cancel Open

Coordinate: -70.8484,43.1464 Scale 1:28376 Render

Research ... [research... Chart Do... researcht... emacs23... Downloads Quantum ...

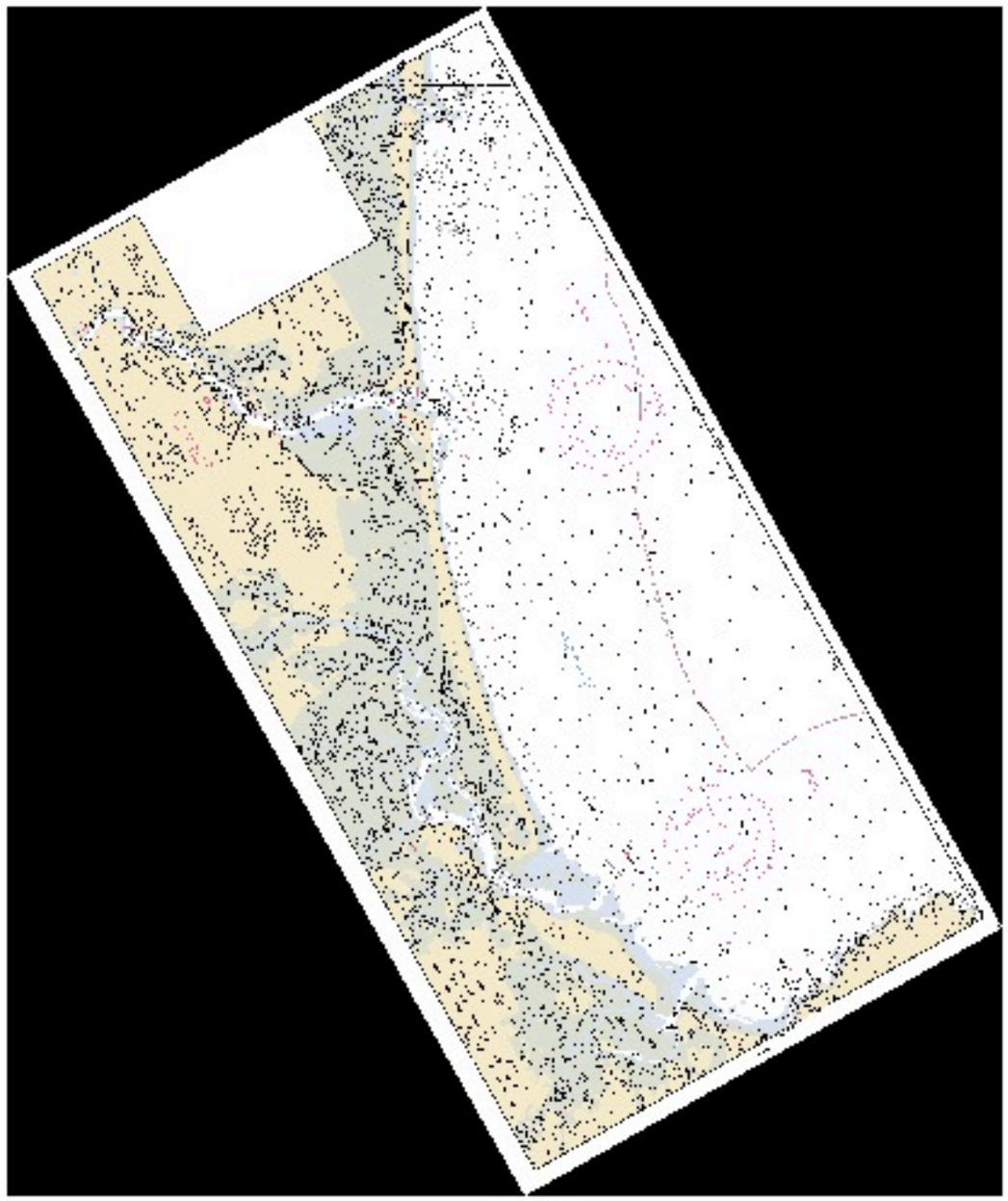
Applications Places System 12:28 PM researchtools

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

13274_1



Coordinate: -89937,5270474 Scale 1:15776867938 Render

Research ... [research... Chart Do... researcht... emacs23... Downloads Quantum ...

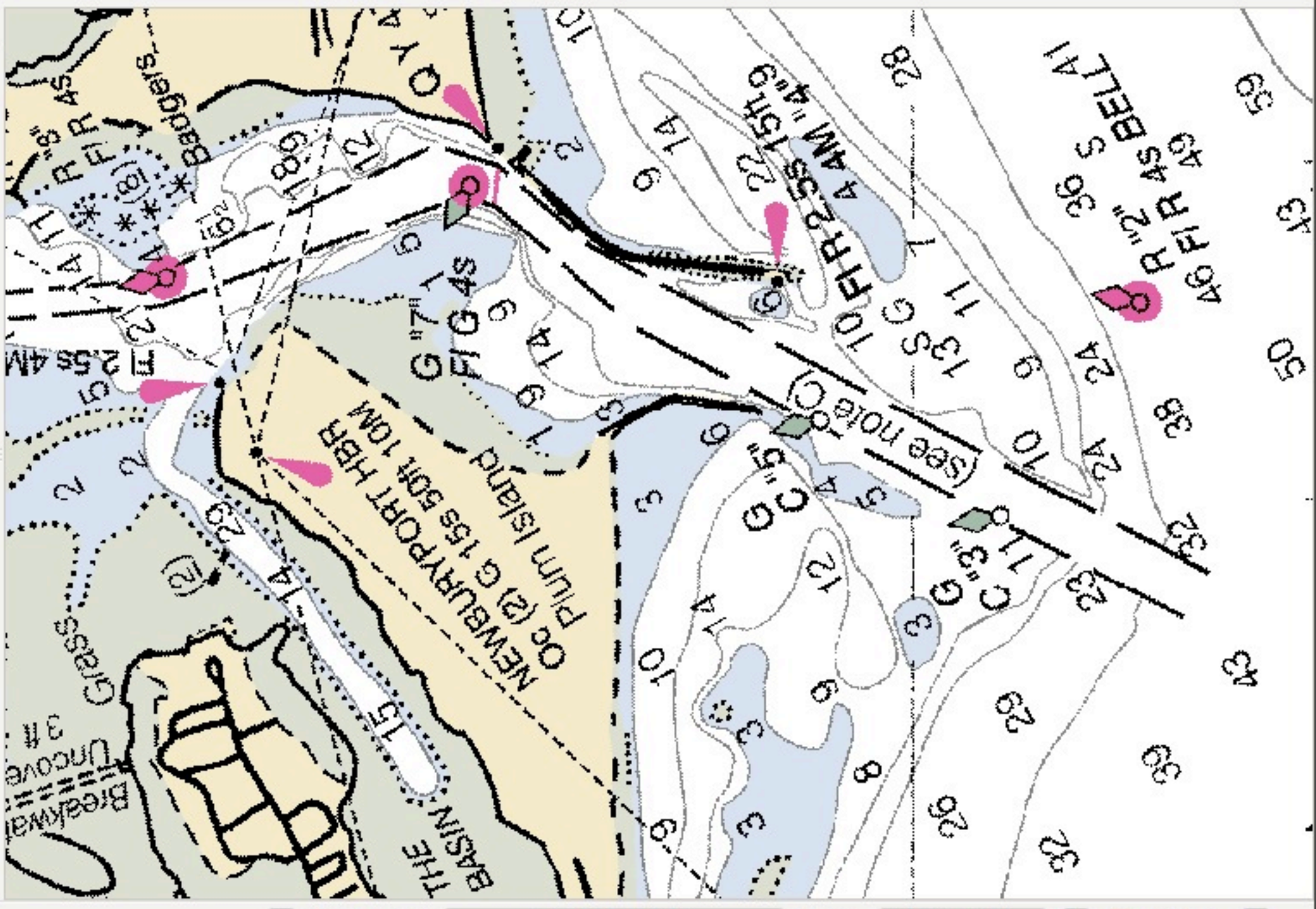
Applications Places System 12:29 PM researchtools

Quantum GIS 1.4.0-Enceladus

File Edit View Layer Plugins Vector Help

Layers

13274_1



Coordinate: -87769,5253422 Scale 1:239151958 Render

Research ... [research... Chart Do... researcht... emacs23... Downloads Quantum ...

Thursday, October 27, 11