



TERASCAN



Brought to you by Courtney Farmer
Created by Courtney Farmer and Kalyx McDonald



SEASPACE.

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TERASCAN₃

It is an integrated system software designed for reception of data from environmental satellites for processing data into images.



5.

In order for your TeraScan operating system to work affectively, you will need this list of things:

- A interface
- Bit synchronizer
- Frame synchronizer
- Antenna for satellite signal
- Uninterruptible power supply (UPS)
- Global Positioning System (GPS) antenna
- Computer workstations with TeraScan software
- A receiver for tuning to the correct satellite and the sensor data



OPERATING SYSTEMS



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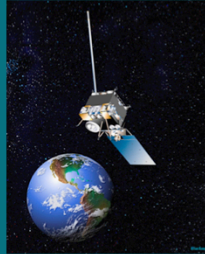


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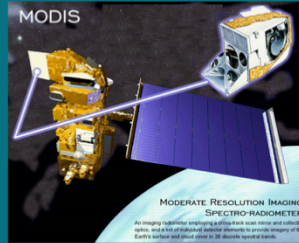
SeaSpace supports TeraScan on two platforms which are CentOS & Redhat Enterprise Linux



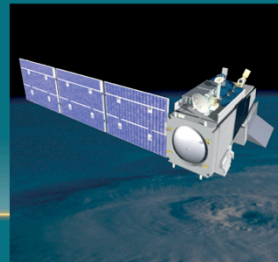
DATA



GOES



NOAA

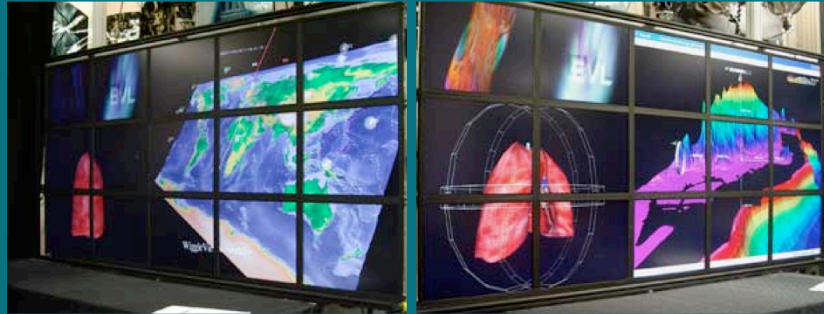


NPP

TeraScan system can receive data through the x-band, c-band, and L- band from various telemetries including GOES, MODIS, NOAA(noah) EOS, NPP, TERRA, AQUA, AND LANDSAT



SOFTWARE



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TeraScan software is based on the Linux operating system which consist of :

- TeraScan Data Format (TDF)
- A set of daemons and services
- A set of reference files and databases
- 600 or more command- line functions
- A set of graphical user interfaces (GUIs)

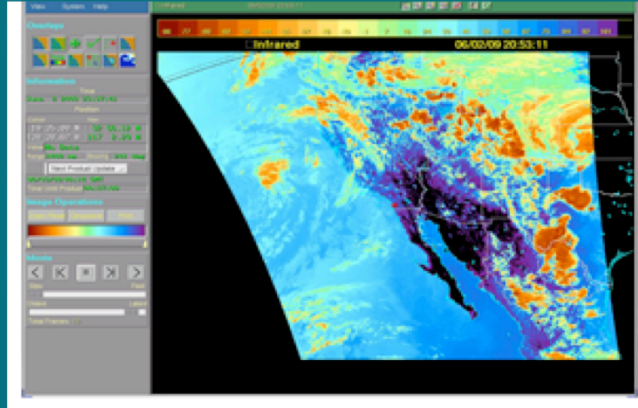
REFERENCE DATA

TeraScan software includes many reference files and databases which supply the information that TeraScan needs to run all of its operations. Some include:

- Orbital elements
- Sensor-definition files
- Climatology databases
- Satellite- definition files
- Sea WIFS color-processing table
- Three geopolitical boundary databases
- Color palette and enhancement look-up tables
- List of ARGOS DCS platforms with their location and calibration data

Climatology databases: required for processing NOAA TOVS data, DMSP Special Sensor data, and SeaWiPS data

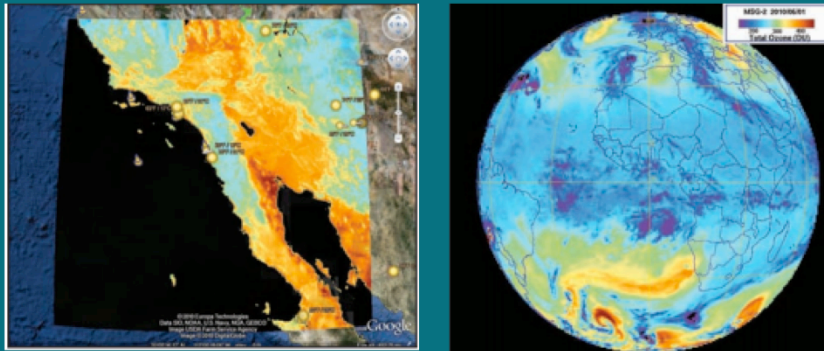
TERASCAN DATA FORMAT (TDF)



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TERASCAN DATA FORMAT OR TDF PROVIDES METADATA INFORMATION ON TDF FORMAT TO USE FOR INGESTION INTO THIRD PARTY SOFTWARE
It takes a multi layered data format that also contains geo-referenced information. Although TDF is the recommend format to use with TERAVISION, TeraScan is capable of exporting more common formats as well. Some examples are KML, PNG AND GEOTIFF

KEY FEATURES



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Some key features are:

Advance Dvorak Technique : it is the standard method for estimating tropical cyclone intensity

Automated Data Retrieval: Automated data retrieval from NASA LAADS

COMS Functions: Ingest and process geostationary data from the Korean COMS satellite

Doppler Radar Import: displays radar imagery along the side of satellite imagery for improved analysis

GOES Ingestion: added ingest capability for updates to post –launch calibrations

MODIS: Batch processing has added a new product using MODIS data

PULSE: pulse provides a graphical display of the status information found in the processing log file

Shapefile Import: Import ArcGIS shape files into teraScan for display over satellite data

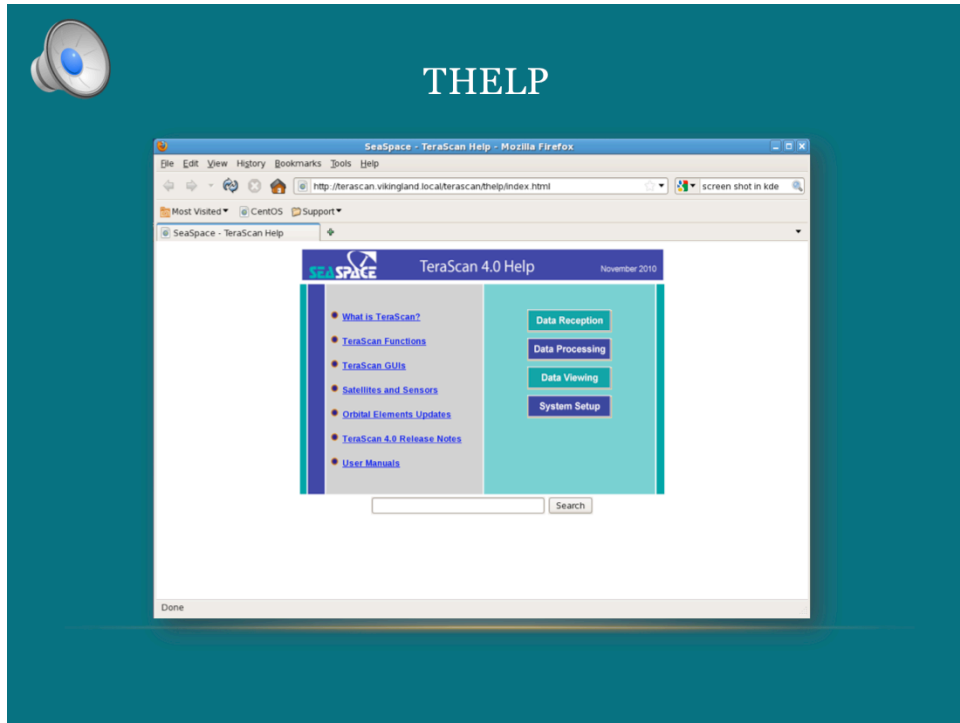


COMMONLY USED COMMANDS

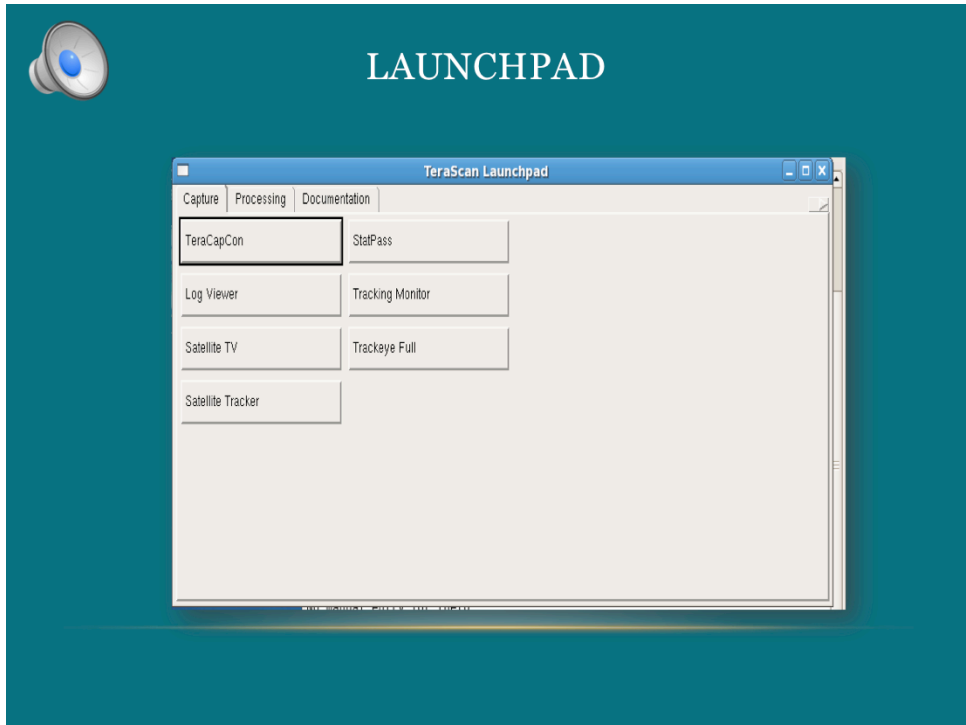
Primary TeraScan commands that group the reception & processing of satellite data are:

thelp
lauchpad
listsched
trackeye full
stu
pulse
tvis
Lspass
ac (return)

Some of TeraScan commands are listed on this slide. Now I will explain each one of them



The command `help` is used to open the help center, which provides the TeraScan Manual



Launchpad leads to access of buttons to get to other software packages



LISTSCHED

```
jeaimehp@terascan:~  
File Edit View Terminal Tabs Help  
[jeaimehp@terascan ~]$ listsched  
# state pri satel telem date day time durat post_process  
1 sched 3 noaa-18 hrpt 2013/06/26 177 18:46:30 11:10 None  
2 sched 3 noaa-19 hrpt 2013/06/26 177 19:05:20 12:10 None  
3 sched 3 noaa-18 hrpt 2013/06/26 177 20:25:50 13:10 None  
4 sched 5 noaa-15 hrpt 2013/06/26 177 21:34:10 09:10 None  
[jeaimehp@terascan ~]$
```

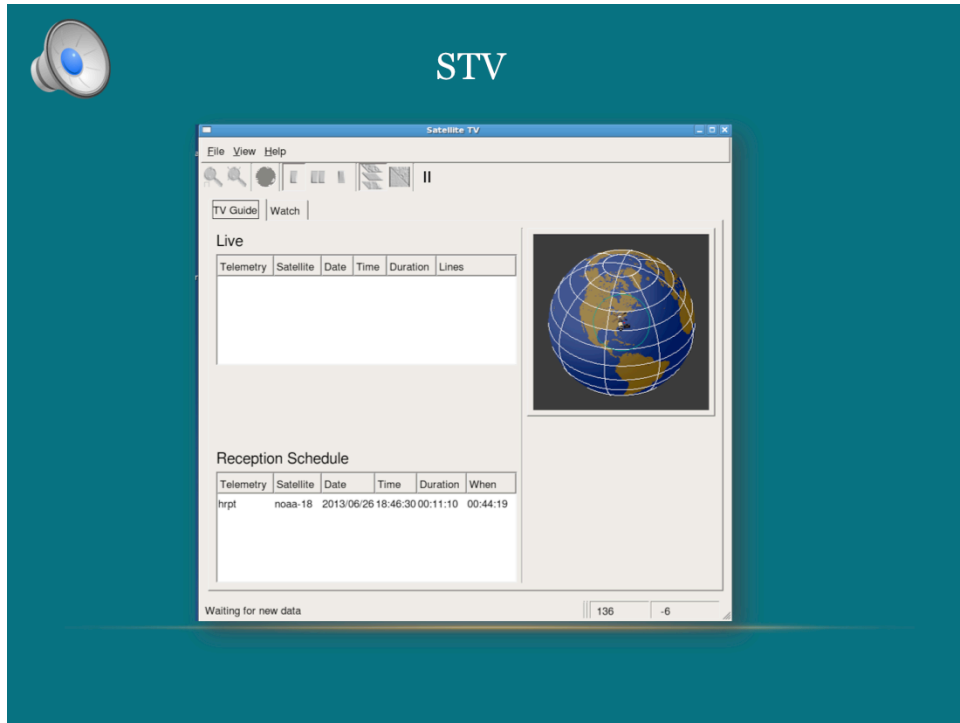
List schedule or listsched command is used to view the satellite schedule



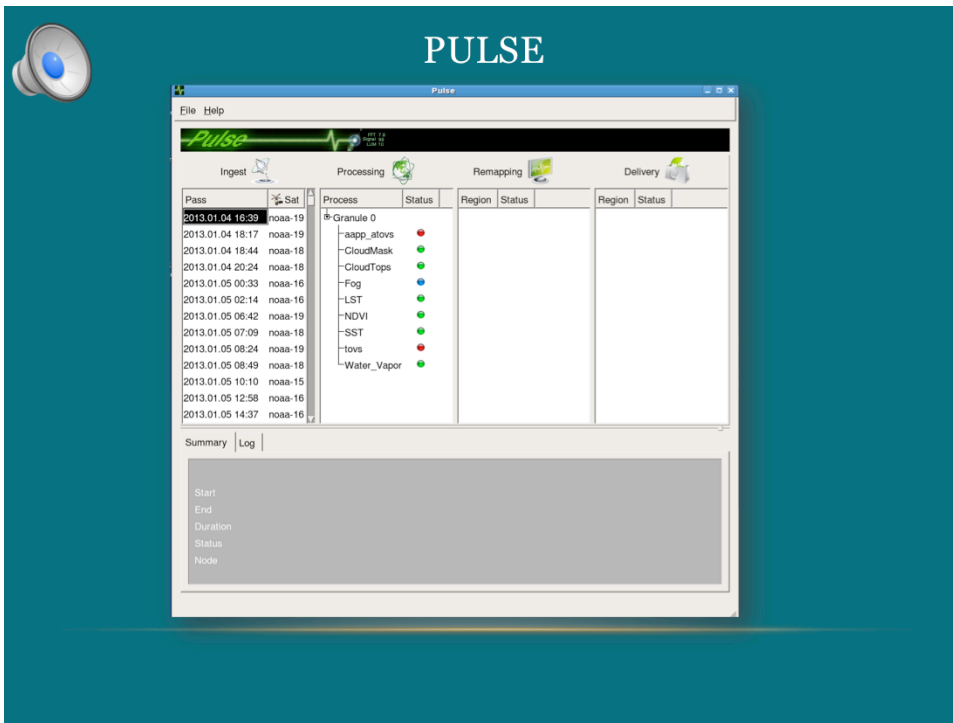
TRACKEYE FULL

```
jeaimhp@terascan:~  
File Edit View Terminal Tabs Help  
[jeaimhp@terascan ~]$ trackeye full  
  
Sat:          Sensor:          Start:      Dur  
Latitude:    0.000 Longitude:   0.000 Magnetic Declination: 0.00 Chain:  
0 Ant: -1 Antenna Azimuth:    0.000  
  
Command          Actual          Calculated  
azim elev head  azim elev  azim elev align mo f  
Date   Time  
req #lin S Sig fsync BS R Trk Align  
2013/06/26 18:01:36.259 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:36.761 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:37.262 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:37.763 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:38.264 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:38.766 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:39.268 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:39.770 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:40.277 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:40.780 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:41.282 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
2013/06/26 18:01:41.783 0.0 0.0 -- 0.0 0.0 0.0 0.0 0.0 *  
?      0 ? *** SEARCH
```

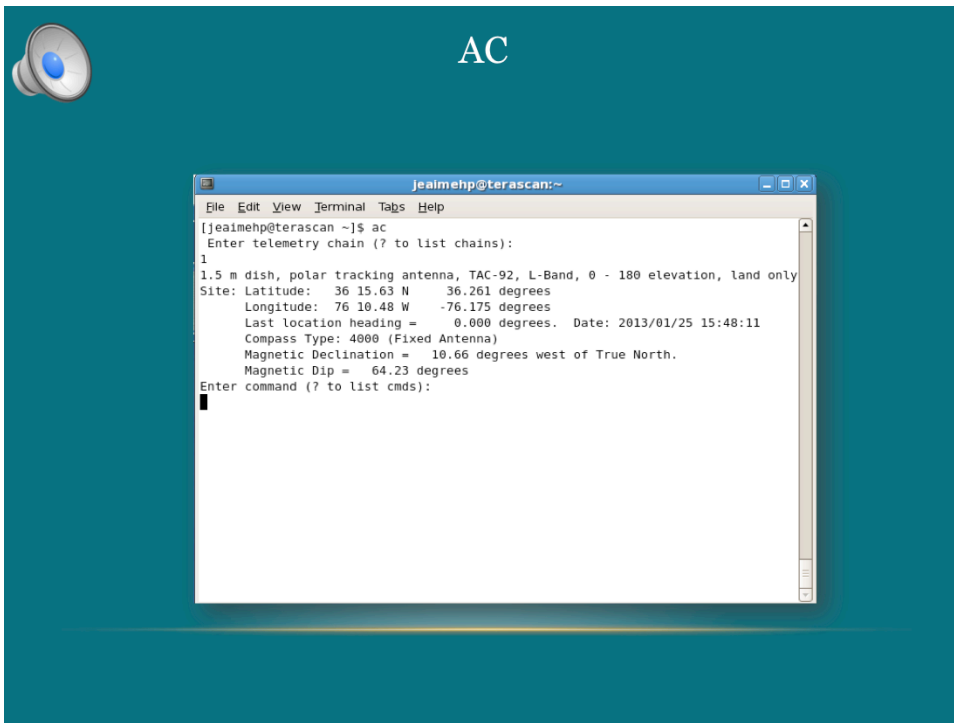
Trackeye full is used to watch a satellite pass come in.



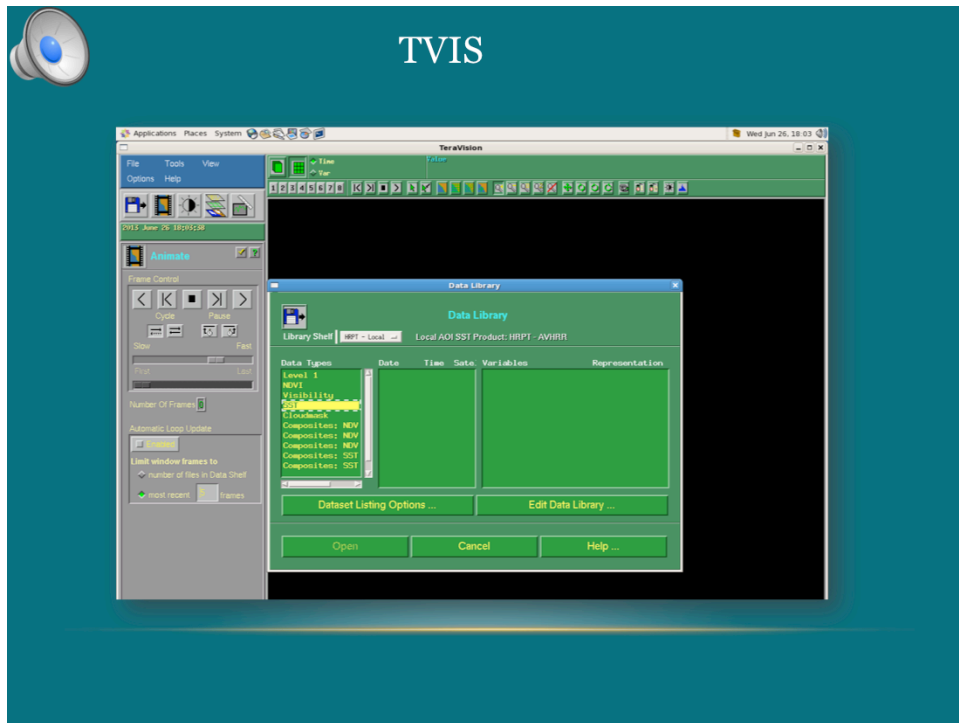
Satellite tv or Stv allows you to watch the data coming in raw and unreferenced.



The command pulse is a display of information found in the processing log file



AC gives you ground stations location and system information



The Tvis command will open the TeraVision software package



LSPASS

```
jealmehp@terascan:~  
File Edit View Terminal Tabs Help  
[jealmehp@terascan ~]$ lspass  
# satel telem date day time durat lines  
1 noaa-15 hrpt 2013/01/23 23 20:50:20 08:30 168  
2 noaa-19 hrpt 2013/01/25 25 06:29:20 13:10 420  
3 noaa-19 hrpt 2013/01/24 24 18:04:10 13:20 199  
4 noaa-18 hrpt 2013/01/24 24 18:25:40 10:50 387  
5 noaa-18 hrpt 2013/01/25 25 08:29:40 13:30 294  
6 noaa-16 hrpt 2013/01/25 25 13:56:40 13:20 374  
7 noaa-16 hrpt 2013/01/25 25 15:38:20 00:00 0  
8 noaa-16 hrpt 2013/01/21 21 13:05:20 11:00 541  
9 noaa-19 hrpt 2013/01/21 21 16:57:10 11:00 414  
10 noaa-18 hrpt 2013/01/21 21 18:57:40 12:40 446  
11 noaa-16 hrpt 2013/01/22 22 00:28:30 12:20 472  
12 noaa-19 hrpt 2013/01/22 22 07:01:20 13:30 147  
13 noaa-18 hrpt 2013/01/22 22 07:23:00 11:10 533  
14 noaa-15 hrpt 2013/01/22 22 09:56:40 09:10 189  
15 noaa-16 hrpt 2013/01/22 22 12:53:30 10:10 515  
16 noaa-19 hrpt 2013/01/22 22 16:47:00 10:10 392  
17 noaa-16 hrpt 2013/01/24 24 23:53:50 09:50 446  
18 noaa-18 hrpt 2013/01/22 22 18:46:50 12:20 414  
19 noaa-15 hrpt 2013/01/22 22 21:14:20 09:10 183  
20 noaa-16 hrpt 2013/01/23 23 00:16:50 11:40 501  
21 noaa-19 hrpt 2013/01/23 23 06:50:40 13:30 300
```

List pass or Lspass gives you a list of recent data recordings



REFERENCES

1. <http://www.seaspace.com/corporate.php>
2. <http://www.sandiegoivdec.org/default.aspx?pageID=6&pagename=home>
3. http://psbew1.nesdis.noaa.gov/terascan/home_basic/what_is_terascan.html
4. <http://www.linux.org/article/view/distro-red-hat>
5. <http://magic.csr.utexas.edu/Station/facility.cfm>
6. http://www.coastalwiki.org/wiki/Waves_and_currents_by_X-band_radar
7. TeraScan training guide
8. <https://aws.amazon.com/marketplace/seller-profile?id=16cb8b03-256e-4dde-8f34-1b0f377efe89>
9. <http://kleanpc.com/cms/services/linux-implementations/>
10. <http://www.ev1.uic.edu/cavern/teranode/teravision>
11. http://seaspace.com/docs/terascan40_flyer.pdf

YOU CAN FIND MORE INFORMATION AT THE
FOLLOWING SITE

CERSER

<http://cerser.ecsu.edu/>

