

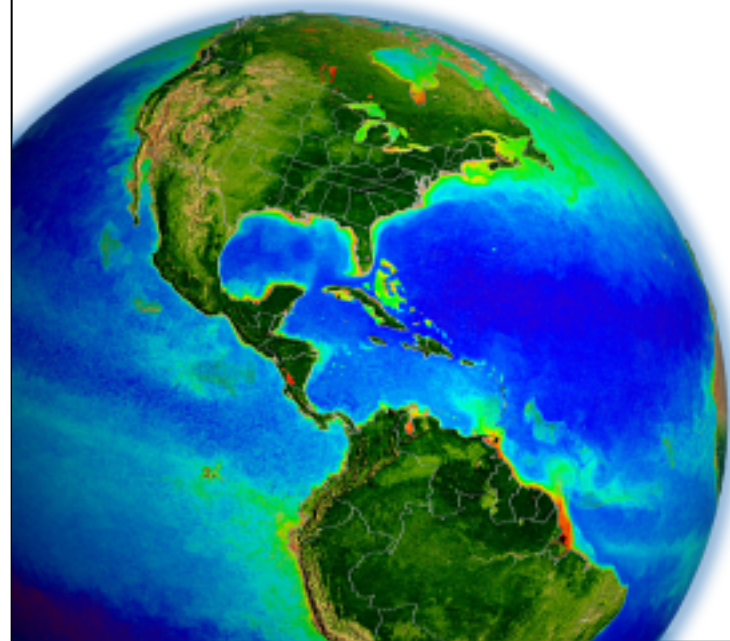
Getting ready for the SeaDAS lab

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NASA Goddard Space Flight Center

UMaine Ocean Optics Summer Course
6-31 July 2015

Acknowledgements: Aynur Abdurazik, Sean Bailey,
Matt Elliot, Danny Knowles, & Don Shea



1. become familiar with the SeaDAS Web site

← → ↻ 🏠 seadas.gsfc.nasa.gov 🔍 ☆ ☰

📱 Apps ★ Bookmarks Ⓜ G 📧 Gmail 📄 A 🌐 Barno 🗨️ BBMS 📺 LP 📺 HR 📄 TDMS 📄 E » 📁 Other Bookmarks

OceanColor SeaDAS

Missions ▾ Data ▾ Documents ▾ Analyses ▾ People Forum ▾ Services ▾ Links

SeaDAS

General Description



SeaDAS is a comprehensive image analysis package for the processing, display, analysis, and quality control of ocean color data. While originally developed to support the SeaWiFS mission, it now supports most US and international ocean color missions. The primary focus of SeaDAS is ocean color data, but it is applicable to many satellite-based earth science data analyses.

The latest version (SeaDAS 7.2) is the result of a collaboration with the developers of ESA's **BEAM** software package. The core visualization package for SeaDAS 7 is based on the BEAM framework, with extensions that provide the functionality provided by previous versions of SeaDAS..

Features
Requirements
Download

Supported Missions

- MODIS
- SeaWiFS
- CZCS
- VIIRS
- HICO
- Aquarius
- Landsat8/OLI
- MERIS
- OCTS
- OCM
- OCM-2
- OSMI
- MOS
- GOCI

User Support

- SeaDAS FAQ
- Online Help
- Ocean Color Web
- Ocean Color Forum
- SeaDAS Mailing List

Other

- SeaDAS Visualization Source Code
- Processing Binaries and Source Code
- SeaDAS version 6.4
- MODISL1DB 1.8

Curator: OceanColor Webmaster
Authorized by: gene carl feldman

Privacy Policy and Important Notices
Updated: 06 May 2015



2. download & install the SeaDAS GUI



← → ↻ 🏠 seadas.gsfc.nasa.gov/installers/ 🔍 ☆ ☰

📱 Apps ★ Bookmarks 🔍 G 📧 Gmail 📄 A 🌐 Barro 📡 BBMS 📺 LP 📺 HR 📄 TDMS » 📁 Other Bookmarks

SeaDAS Visualization Installers

Filename	Version	Size
seadas_7.2_win32_installer.exe	7.2	173.61 MB
seadas_7.2_win64_installer.exe	7.2	175.34 MB
seadas_7.2_macos_installer.dmg	7.2	182.25 MB
seadas_7.2_linux32_installer.sh	7.2	150.66 MB
seadas_7.2_linux64_installer.sh	7.2	150.66 MB

The Windows installers are executables. The MacOSX installer is a dmg file. The Linux installers are shell scripts. They can be executed as the following:

```
$ sh seadas_<version>_linux[64]_installer.sh
```

Once installed, you may wish to add the seadas-<version>/bin directory to your path to allow easy launching of SeaDAS, e.g. add the following to your .bashrc:

```
$ export PATH=[full-path-to]/seadas-<version>/bin:$PATH
```

SeaDAS Processing Programs and Source Code

The SeaDAS data processing components are **distributed separately** from the SeaDAS visualization package.

*Currently, the processing components can only be installed on Linux or MacOSX (Intel, not PowerPC) systems. The Linux binaries were compiled on a system with GLIBC-2.14. If your system has an older version, you will need to **build the binaries** from source.*

Processing Component Sizes

A typical installation (e.g. processing programs, MODIS and SeaWIFS data files) will require 3 — 5G of disk space. A full installation will require more than 10G of disk space

Processing Programs	1.1G	OCM-1 Components	145M
Aquarius Components	2.0G	OCM-2 Components	145M
AVHRR Components	2.0K	OCTS Components	145M
CZCS Components	73M	OSMI Components	23M
* MODIS Components	955M	SeaWIFS Components	173M
MERIS Components	273M	VIIRS Components	184M
MOS Components	37M	Source Code	117M
Evaluation Components (all missions)	1.1G		

** Size is for a single MODIS sensor. If both are selected, the combined total would be 1.3G, as some components are shared between the MODIS-Aqua and MODIS-Terra sensors*

3. need help? visit the OC forum first.

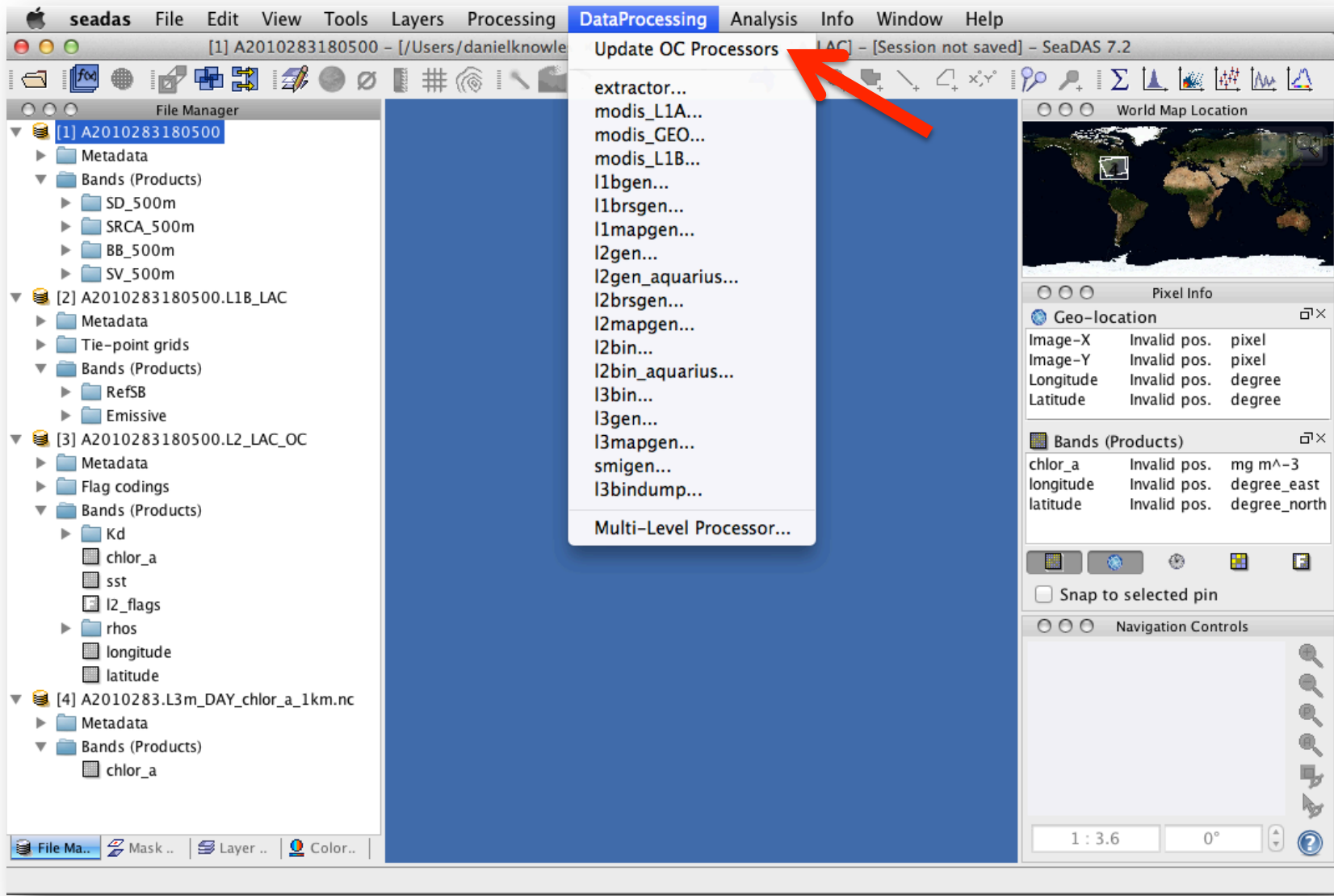


The screenshot shows the Ocean Color Forum website. The browser address bar displays the URL: oceancolor.gsfc.nasa.gov/forum/oceancolor/forum_show.pl. The page title is "Ocean Color Forum" and it indicates the user is "Not logged in". Navigation links include "Forum", "Ocean Color Home", "Help", "Search", and "Login". Below the navigation is a "Forum" section with links for "Info", "Feeds", and "Mark Old". The main content is a table listing various forum categories, their post counts, and the date and time of the last post. A red arrow points to the "SeaDAS" section of the table.

	Posts	Last Post
Announcements		
Ocean Color Announcements	113	2015-06-12 16:46
SeaDAS Announcements	78	2015-05-06 14:08
Frequently Asked Questions		
General Forum Information	8	2008-04-14 08:41
SeaDAS 7 FAQ	2	2015-06-24 07:09
SeaDAS 6 FAQ Archive FAQ for SeaDAS 6	38	2011-01-17 17:59
Data Products & Algorithms FAQ	33	2009-08-03 10:22
Data Access FAQ	29	2013-06-20 14:13
Products and Algorithms		
Satellite Data Products & Algorithms	5329	2015-07-15 12:45
Satellite Data Access	3190	2015-07-15 13:09
Field Data - SeaBASS	79	2015-04-14 14:02
SeaDAS		
SeaDAS 7 - General Questions	2129	2015-07-14 16:59
SeaDAS 6.x - General Questions	11908	2015-07-08 10:39
SeaDAS 6.x Virtual Appliance for Windows	386	2014-10-28 09:31
MODIS Direct Broadcast Support	328	2015-05-19 08:59
Non-SeaDAS Packages (e.g. MATLAB, ENVI, GIS, etc)	363	2015-07-09 12:20
Special Topics		
Ocean Color Reprocessing Multi-mission ocean color data reprocessing	253	2015-07-15 13:29
PACE PACE Project Announcements	2	2015-06-15 14:18
HICO	93	2015-05-26 12:48
OceanColor Website Redesign	25	2015-03-24 09:18
Inherent Optical Properties Workshop	154	2011-11-23 16:02

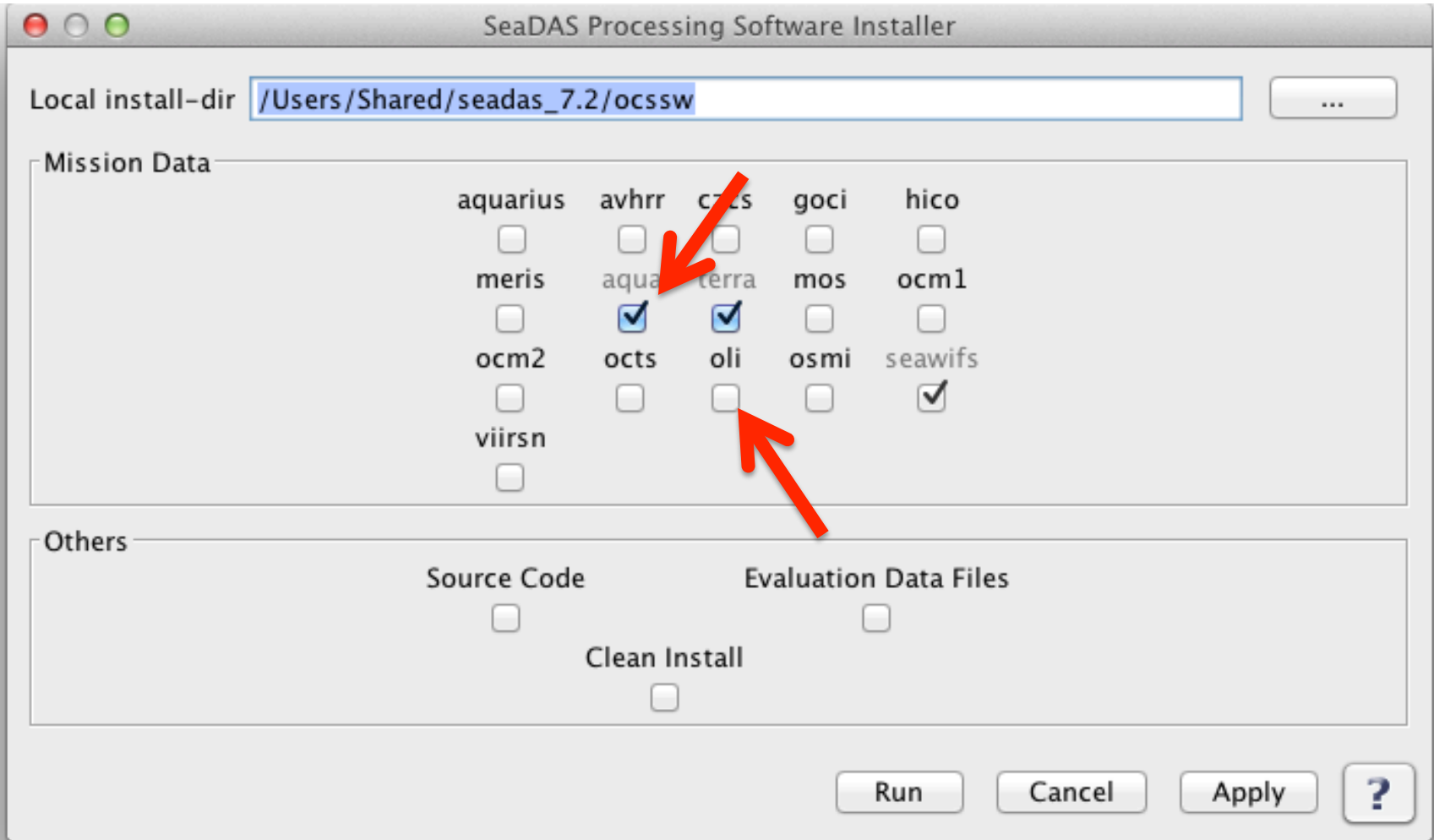


4. install the OBPG data processing software



Requires Linux or Mac – if you don't have these, find a friend who does

4. install the OBPG data processing software



Install at least MODIS-Aqua & Landsat-8 OLI

5. need help? visit the OC forum first.



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6. familiarize yourself with terminal windows & practice setting up the SeaDAS environment

```
bash-3.2$ echo I LOVE SEADAS
I LOVE SEADAS
bash-3.2$ export OCSSWROOT=/Users/Shared/seadas-7.0/ocssw/
bash-3.2$ printenv OCSSWROOT
/Users/Shared/seadas-7.0/ocssw/
bash-3.2$ source $OCSSWROOT/OCSSW_bash.env
bash-3.2$ getanc.py
Usage:
  getanc.py [OPTIONS] FILE
  or
  -s,--start YYYYDDHHMMSS [-e,--end YYYYDDHHMMSS] [OPTIONS]
  FILE Input L1A or L1B file

NOTE: Currently NO2 climatological data is used for OBPG operational
      processing, so to match OBPG distributed data products, the default
      behaviour disables NO2 searching.

This program queries an OBPG server and optionally downloads the optimal
ancillary data files for Level-1 to Level-2 processing. If an input file
is specified the start and end times are determined automatically, otherwis
a start time must be provided by the user.

A text file (with the extension '.anc') is created containing parameters
that can be directly used as input to the l2gen program for optimal Level-1
to Level-2 processing, e.g.:

    l2gen ifile=<infile> ofile=<outfile> par=<the *.anc text file>

EXIT STATUS:
  0 : all optimal ancillary files exist and are present on the locally
  99 : an error was encountered; no .anc parameter text file was created
  31 : no ancillary files currently exist corresponding to the start
      time and therefore no .anc parameter text file was created
  1-30 : bitwise value indicating one or more files are not optimal:

      bit 0 set = missing one or more MET files
      bit 1 set = missing one or more OZONE files
      bit 2 set = no SST file found
      bit 3 set = no NO2 file found
      bit 4 set = no ICE file found

e.g. STATUS=11 indicates there are missing optimal MET, OZONE, and NO2 file

Options:
```

(1) Identify the processing directory structure with an environmental variable:

```
export OCSSWROOT=[SeaDAS install directory]/ocssw
```

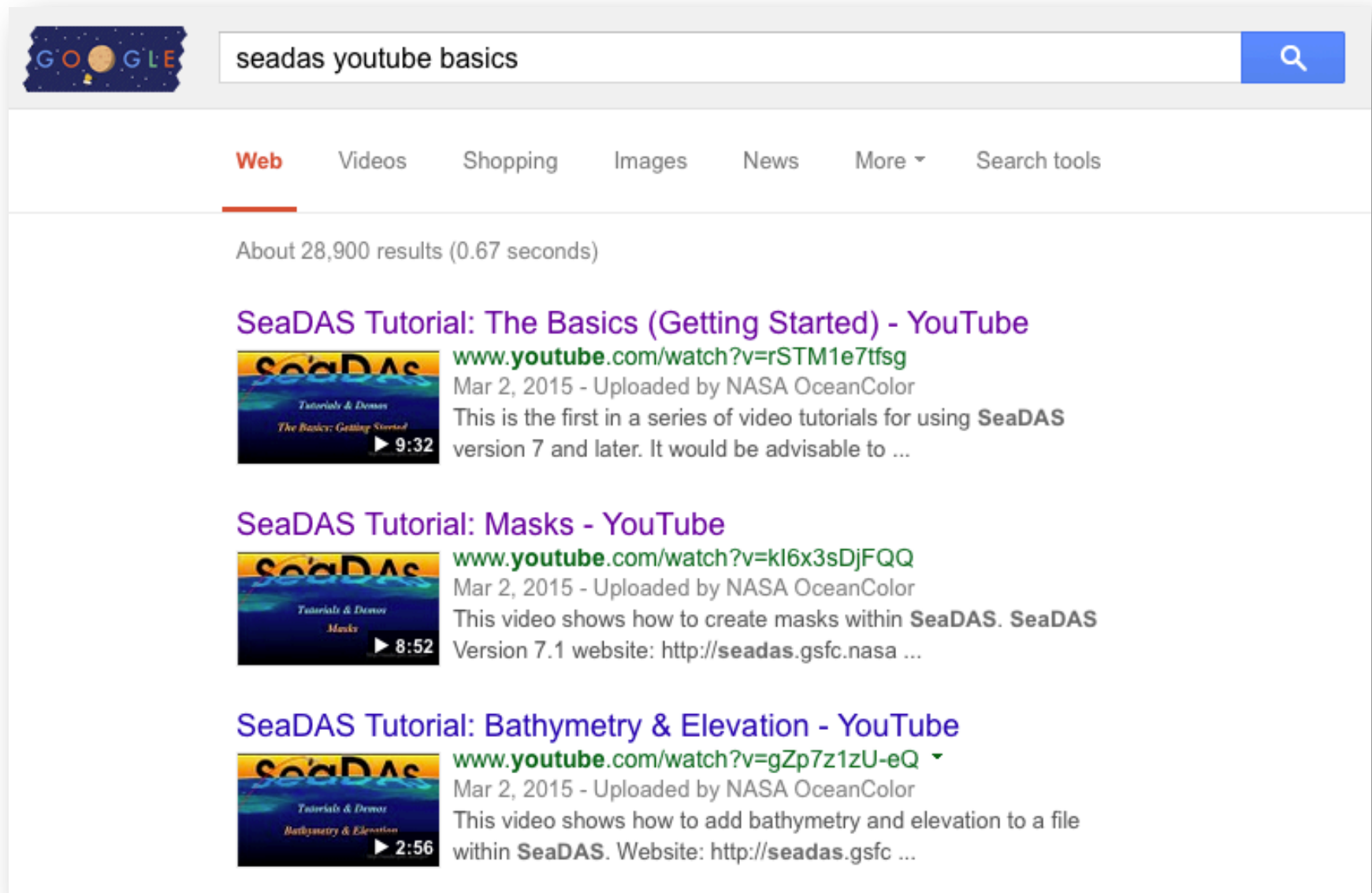
(2) Set up the rest of the data processing environment:

```
source $OCSSWROOT/OCSSW_bash.env
```


(3) Test out the set up by running a program:


```
getanc.py
```



7. additional resources - YouTube



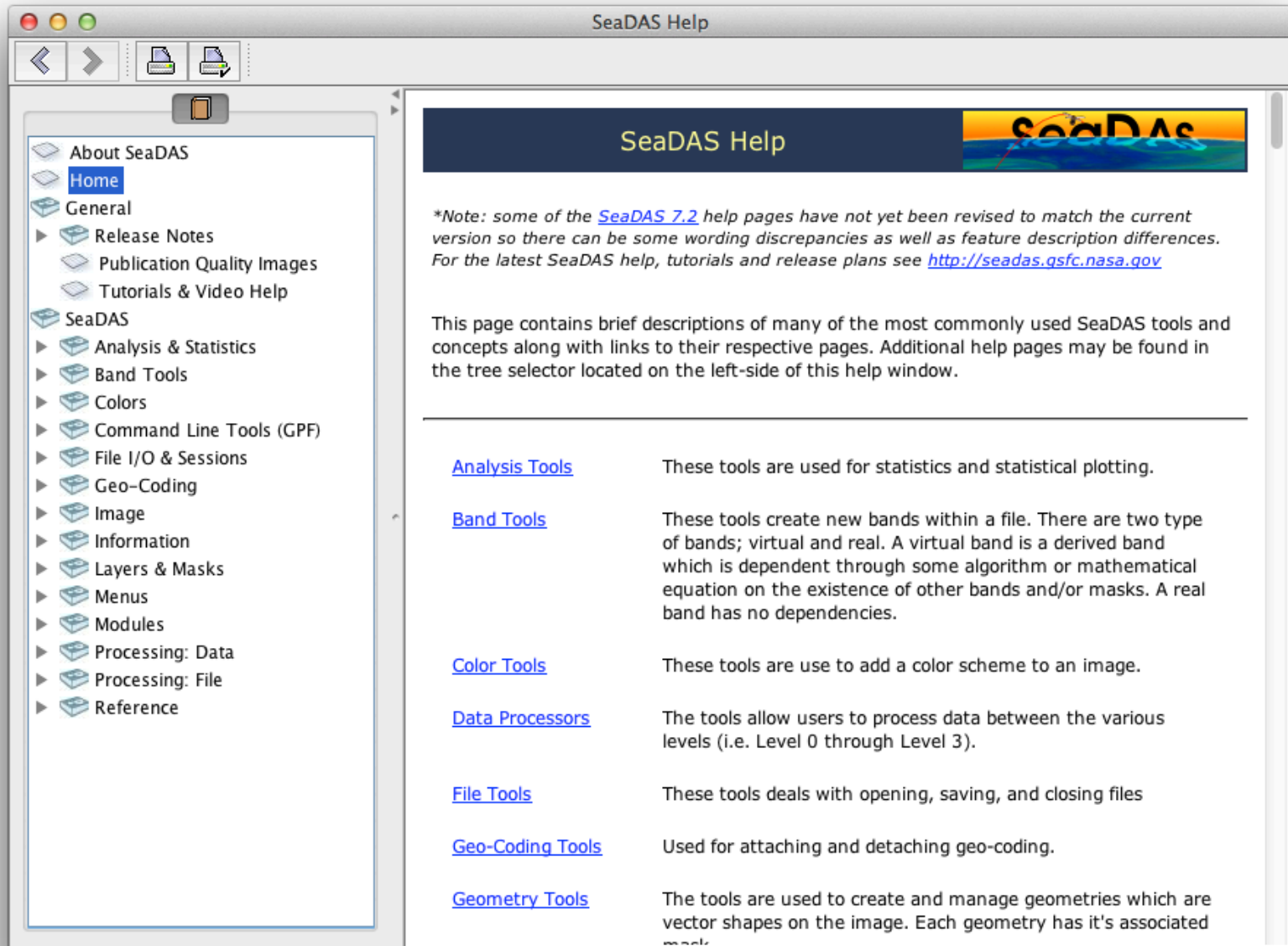
The screenshot shows a Google search interface with the search bar containing 'seadas youtube basics'. Below the search bar are navigation tabs for 'Web', 'Videos', 'Shopping', 'Images', 'News', 'More', and 'Search tools'. The search results indicate 'About 28,900 results (0.67 seconds)'. Three video results are displayed, each with a thumbnail, title, URL, upload date, uploader, and a brief description.

SeaDAS Tutorial: The Basics (Getting Started) - YouTube
 www.youtube.com/watch?v=rSTM1e7tfsg
Mar 2, 2015 - Uploaded by NASA OceanColor
This is the first in a series of video tutorials for using **SeaDAS** version 7 and later. It would be advisable to ...

SeaDAS Tutorial: Masks - YouTube
 www.youtube.com/watch?v=kl6x3sDjFQQ
Mar 2, 2015 - Uploaded by NASA OceanColor
This video shows how to create masks within **SeaDAS**. **SeaDAS** Version 7.1 website: [http://seadas.gsfc.nasa ...](http://seadas.gsfc.nasa.gov)

SeaDAS Tutorial: Bathymetry & Elevation - YouTube
 www.youtube.com/watch?v=gZp7z1zU-eQ
Mar 2, 2015 - Uploaded by NASA OceanColor
This video shows how to add bathymetry and elevation to a file within **SeaDAS**. Website: [http://seadas.gsfc ...](http://seadas.gsfc.nasa.gov)

7. additional resources – SeaDAS internal help



The screenshot shows a window titled "SeaDAS Help". On the left is a tree view with the following items: About SeaDAS, Home (selected), General, Release Notes, Publication Quality Images, Tutorials & Video Help, SeaDAS, Analysis & Statistics, Band Tools, Colors, Command Line Tools (GPF), File I/O & Sessions, Geo-Coding, Image, Information, Layers & Masks, Menus, Modules, Processing: Data, Processing: File, and Reference. The main content area has a header "SeaDAS Help" with a logo. Below the header is a note: "*Note: some of the [SeaDAS 7.2](\"#\") help pages have not yet been revised to match the current version so there can be some wording discrepancies as well as feature description differences. For the latest SeaDAS help, tutorials and release plans see [http://seadas.gsfc.nasa.gov](\"http://seadas.gsfc.nasa.gov\")". Below the note is a paragraph: "This page contains brief descriptions of many of the most commonly used SeaDAS tools and concepts along with links to their respective pages. Additional help pages may be found in the tree selector located on the left-side of this help window." Below this is a list of tool categories with descriptions:

Analysis Tools	These tools are used for statistics and statistical plotting.
Band Tools	These tools create new bands within a file. There are two type of bands; virtual and real. A virtual band is a derived band which is dependent through some algorithm or mathematical equation on the existence of other bands and/or masks. A real band has no dependencies.
Color Tools	These tools are use to add a color scheme to an image.
Data Processors	The tools allow users to process data between the various levels (i.e. Level 0 through Level 3).
File Tools	These tools deals with opening, saving, and closing files
Geo-Coding Tools	Used for attaching and detaching geo-coding.
Geometry Tools	The tools are used to create and manage geometries which are vector shapes on the image. Each geometry has it's associated mask.

8. if you're inspired, view & process some data!

The screenshot displays the SeaDAS 7.2 software interface. The main window shows a satellite data visualization of the MODIS RHOS ATAN LAND WATER HYBRID RGB. The interface includes a File Manager on the left, a main visualization area, and a World Map Location window on the right. A configuration dialog box for the 'l2gen' process is open in the foreground, showing various options and a text area with configuration parameters.

File Manager (Left Panel):

- A2010283180500.L2_LAC_OC
 - Metadata
 - Flag codings
 - Bands (Products)
 - Kd
 - chlora
 - sst
 - l2_flags
 - rhos
 - rhos_645 (645 nm)
 - rhos_555 (555 nm)
 - rhos_469 (469 nm)
 - longitude
 - latitude

World Map Location (Right Panel):

Pixel Info

Geo-location		
Image-X	Invalid pos.	pixel
Image-Y	Invalid pos.	pixel
Longitude	Invalid pos.	degree
Latitude	Invalid pos.	degree

Bands (Products)

chlora	Invalid pos.	mg m ⁻³
longitude	Invalid pos.	degree east

l2gen Configuration Dialog (Foreground):

Main | Products | Processing Options | Subsetting Options | Thresholds | Ancillary Inputs | IOP Options | Miscellaneous

Primary I/O Files

ifile: A2010283180500.L1B_LAC

geofile: /Users/danielknowles/IOCS/A2010283180500.geo

ofile: /Users/danielknowles/IOCS/A2010283180500.L2_LAC_OC

Parfile

Retain Selected IFILE Show Defaults Suite: OC

```
# PRIMARY INPUT OUTPUT FIELDS
ifile=/Users/danielknowles/IOCS/A2010283180500.L1B_LAC
geofile=/Users/danielknowles/IOCS/A2010283180500.geo
ofile=/Users/danielknowles/IOCS/A2010283180500.L2_LAC_OC

# SUITE
suite=OC

# PRODUCTS
# l2prod=Kd_490 Rrs_vvv angstrom aot_869 chlora ipar nflh par pic poc

# PROCESSING OPTIONS
# absaer_opt=-1
# absaer=0.0
# aer_angstrom=-999.0
# aer_iter_max=10
# aermodels=[r30f95v01,r30f80v01,r30f50v01,r30f30v01,r30f20v01,r30f10v01,r30f05v01,r30f02v01,r30f01v01,r30f00v01,r50f95v01,r50f80v01,r50f50v01,r50f30v01,r50f20v01,r50f10v01,r50f05v01,r50f02v01,r50f01v01,r50f00v01]
```

Keep params when new ifile is selected Open in SeaDAS

