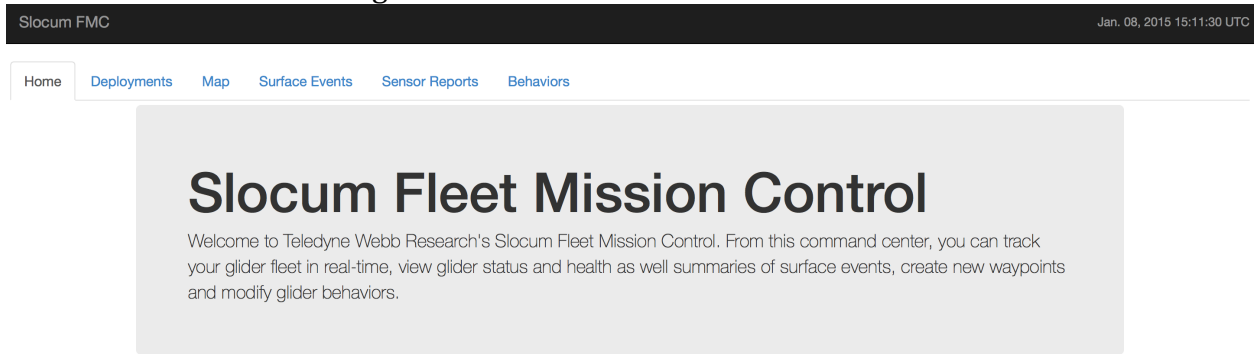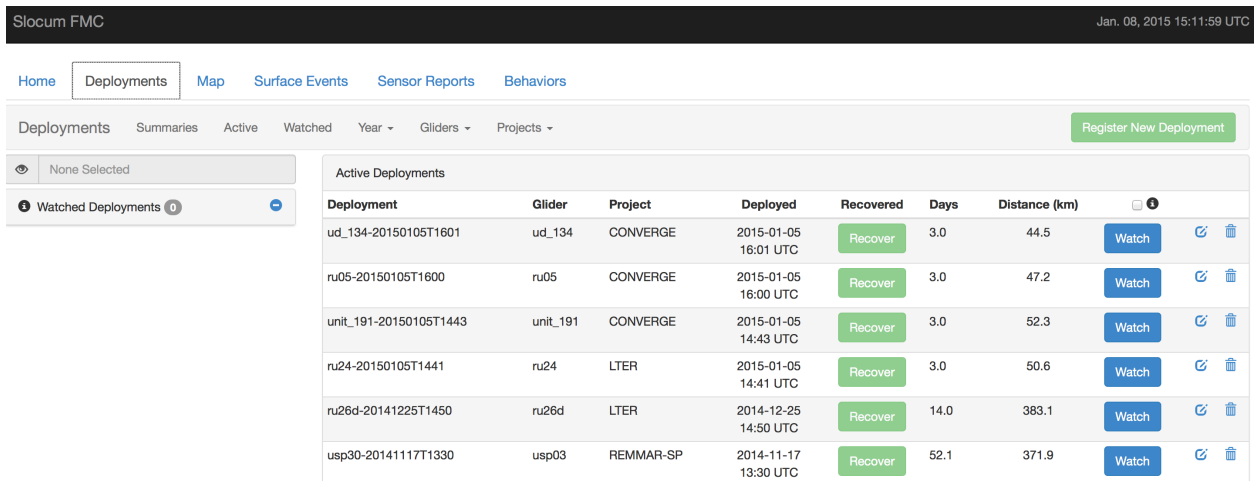**How to Read CONVERGE Glider Imagery Data Primer**
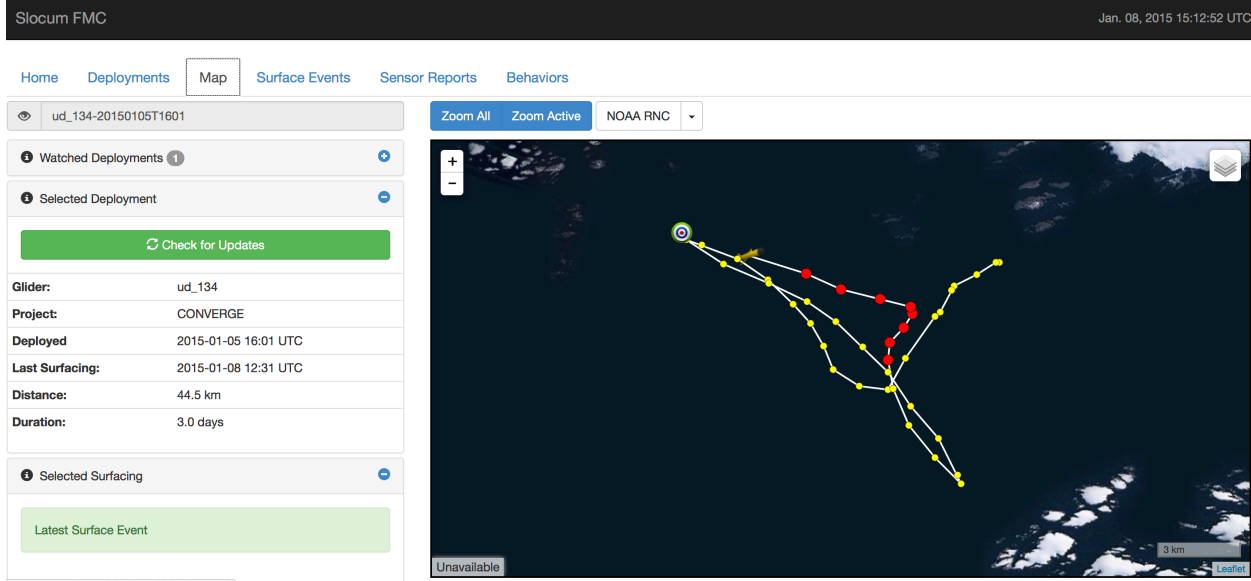
Overall Notes about the data:
- Everything is in Greenwich Mean Time (GMT), which is 5 hours ahead of the east cost.
- All time is presented in military time, which means it is from 0:00 (12:00am) to 23:59 (11:59pm).
- Wind measurements are in m/s and surface current measurements are in cm/s, check the units carefully when looking at arrowed maps to know which you are looking at.

3) Glider Imagery
- *Real-time Glider Positions* – This is a link to the Slocum glider mission control page, where you can access data about all of the Slocum gliders out in the water at a given period in time. If you select Deployments you can choose a particular glider (CONVERGE is our project and LTER stands for Long-Term Ecological Research the team of scientists that are currently on the LMG collecting data). If you select Map you can see the track path of each glider, when it surfaced last, how far it has gone overall and how long it has been in the water.

| Slocum FMC | | | | | Jan. 08, 2015 15:11:30 UTC |

| Home | Deployments | Map | Surface Events | Sensor Reports | Behaviors |

Slocum Fleet Mission Control

Welcome to Teledyne Webb Research's Slocum Fleet Mission Control. From this command center, you can track your glider fleet in real-time, view glider status and health as well summaries of surface events, create new waypoints and modify glider behaviors.

| Slocum FMC | | | | | Jan. 08, 2015 15:11:59 UTC |

| Home | Deployments | Map | Surface Events | Sensor Reports | Behaviors |

Deployments   Summaries   Active   Watched   Year ▾   Gliders ▾   Projects ▾   Register New Deployment

👁 None Selected

ℹ Watched Deployments **0**   ⊖

Active Deployments

Deployment	Glider	Project	Deployed	Recovered	Days	Distance (km)	☐ ℹ		
ud_134-20150105T1601	ud_134	CONVERGE	2015-01-05 16:01 UTC	Recover	3.0	44.5	Watch	☑	🗑
ru05-20150105T1600	ru05	CONVERGE	2015-01-05 16:00 UTC	Recover	3.0	47.2	Watch	☑	🗑
unit_191-20150105T1443	unit_191	CONVERGE	2015-01-05 14:43 UTC	Recover	3.0	52.3	Watch	☑	🗑
ru24-20150105T1441	ru24	LTER	2015-01-05 14:41 UTC	Recover	3.0	50.6	Watch	☑	🗑
ru26d-20141225T1450	ru26d	LTER	2014-12-25 14:50 UTC	Recover	14.0	383.1	Watch	☑	🗑
usp30-20141117T1330	usp03	REMMAR-SP	2014-11-17 13:30 UTC	Recover	52.1	371.9	Watch	☑	🗑

Slocum FMC	Jan. 08, 2015 15:12:52 UTC

Home   Deployments   Map   Surface Events   Sensor Reports   Behaviors

👁 ud_134-20150105T1601

ⓘ Watched Deployments 1   ➕

ⓘ Selected Deployment   ➖

⟳ Check for Updates

Glider:	ud_134
Project:	CONVERGE
Deployed	2015-01-05 16:01 UTC
Last Surfacing:	2015-01-08 12:31 UTC
Distance:	44.5 km
Duration:	3.0 days

ⓘ Selected Surfacing   ➖

Latest Surface Event

Zoom All   Zoom Active   NOAA RNC ▾

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Unavailable   3 km   Leaflet

- *Real-time Glider Data* – This is a link to the Rutgers COOL Lab data portal in which you can get access to data about the different gliders that are out in the water at a given period of time in terms of their location and their location with respect to currents.

Active Deployments

Jan. 08, 2015 15:10:56 UTC

Home Deployed Gliders Years Projects ⚠Statistics 🔒

Deployed Glider KMZ Files

Gliders	Gliders & Currents	Gliders w/ Time Slider	Gliders & Currents w/ Time Slider
🌐	🌐	🌐	🌐

Glider Status

| ID	Project	Deployed	Last Call	Hours Ago	Location	# Days	Distance	Waypoint	Range	Battery	Vacuum	POC	Notes
ru05-442	CONVERGE	2015-01-05 16:00 GMT	2015-01-08 12:50 GMT	2:20 hours	64°49.37'S 64°09.60'W	2.9	46.2 km	64°47.26'S 64°13.55'W	5.0 km	13.47 Volts	9.0 inHg	Haskins Aragon Haldeman	3
ru24-441	LTER	2015-01-05 14:41 GMT	2015-01-08 15:00 GMT	0:10 hours	64°49.31'S 64°02.62'W	3.0	49.3 km	64°49.20'S 64°04.00'W	1.1 km	13.42 Volts	9.1 inHg	Haskins Aragon Haldeman	5
ru26d-439	LTER	2014-12-25 14:50 GMT	2015-01-08 14:14 GMT	0:56 hours	64°04.19'S 65°25.30'W	14.0	379.6 km	64°15.86'S 65°47.80'W	28.3 km	10.96 Volts	11.0 inHg	Cimino Haskins Aragon	6
ud_134-443	CONVERGE	2015-01-05 16:01 GMT	2015-01-08 12:31 GMT	2:39 hours	64°49.12'S 64°14.70'W	2.9	42.3 km	64°48.65'S 64°17.96'W	2.7 km	13.25 Volts	10.3 inHg	Haskins Aragon Haldeman	2
unit_191-440	CONVERGE	2015-01-05 14:43 GMT	2015-01-08 14:25 GMT	0:45 hours	64°53.40'S 64°09.62'W	3.0	50.7 km	64°57.02'S 64°18.83'W	9.9 km	N/A	0.0 inHg	Haskins Aragon Haldeman	4

Page Loaded: 2015-01-08 15:10 GMT

- *Real-time Glider Transect Images* – This link takes you to a directory of maps of all the track locations for each of the gliders in the CONVERGE project (RU05, RU24, UAF, and blue_hen/UD134). In the folders for each glider in the directory there are these types of files with different water quality data that the glider recorded since it was deployed (note – not every glider folder has every type of file):
    a. GLIDERNAME_mat.mat – This is a data file of the gliders data for scientists to access the raw data.

    b. GLIDERNAME_bb.png (with and without numbers in file name) - This is a glider profile of optical backscatter (a way to measure how many particles are in the water) in the water column across the glider transect since it was
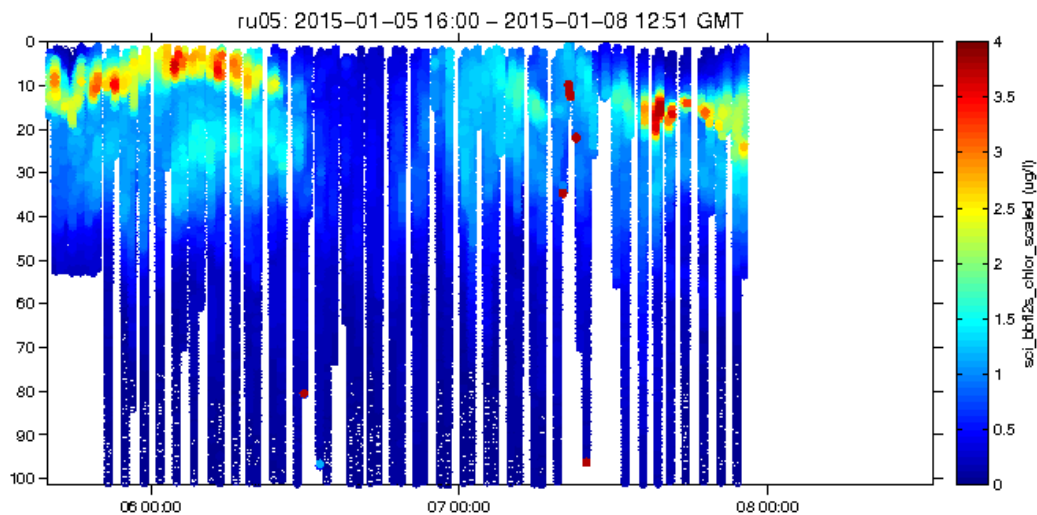
deployed. The surface of the water is the top of the profile and the bottom of the profile is 100 m, the deepest the glider dove down to. The x-axis is time. The units for backscatter are 1/meters. Higher values (red) indicate more suspended particles (like phytoplankton) are in the water scattering light back toward the glider and lower values (blue) indicate fewer suspended particles in the water.
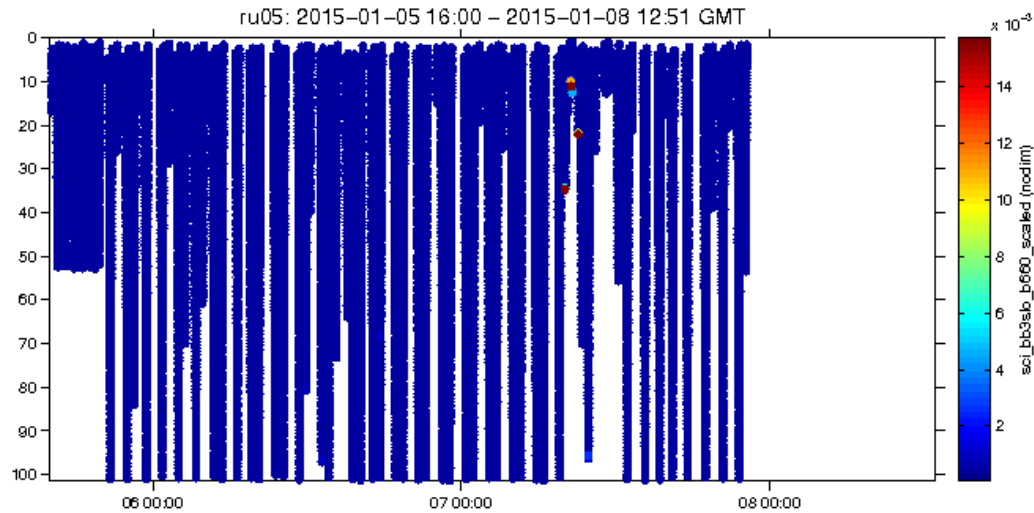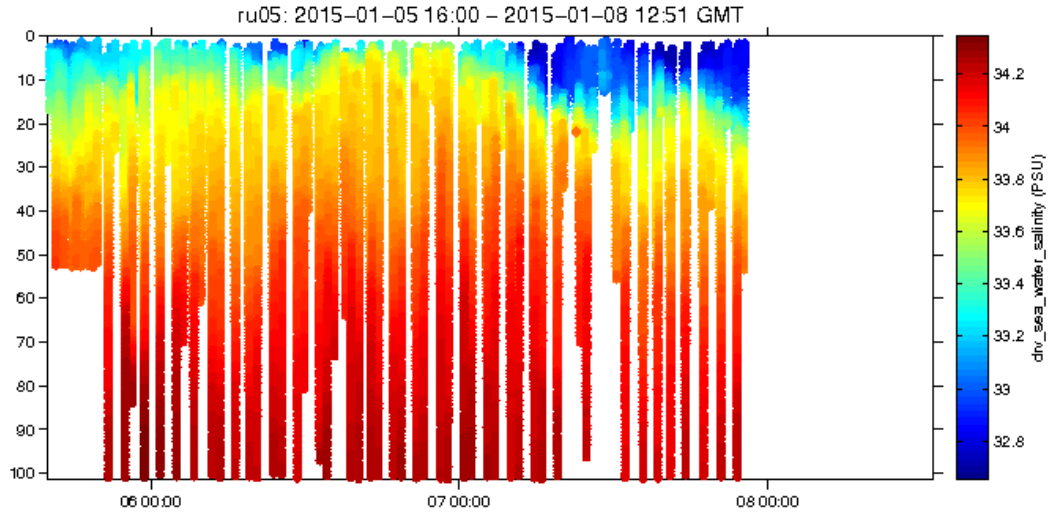

c. GLIDERNAME_fvfm.png - This is a glider profile of phytoplankton health in the water column across the glider transect since the glider was deployed. The surface of the water is the top of the profile and the bottom of the profile is 100 m, the deepest the glider dove down to. The x-axis is time. This is a ratio of fluorescence of measured fluorescent response (Fv) and maximum fluorescent response (Fm) so the values have no units. The instrument works by probing the phytoplankton population with a low level light to measure the phytoplanktons' ability to fluoresce. If the instrument detects fluorescence at very low light, that means the phytoplankton are ready to do photosynthesis. Then the instrument sends a very fast series of bright light pulses, and measures the fluorescent response. The instrument measures how much fluorescent response there is (Fv) and the maximum fluorescent response (Fm). The ratio of Fv to Fm indicates that the phytoplankton were able to handle the bright light pulses, and they are healthy. A low ratio indicates that phytoplankton are not ready for bright light, and are not healthy. An analogy: One way to measure the fitness of a boxer would be to see how many punches the boxer can take before s/he falls down. The more punches, the healthier the boxer was. Same thing here…the more light pulses the phytoplankton can handle, the healthier they are. Red indicates healthier cells and blue indicates less healthy cells.
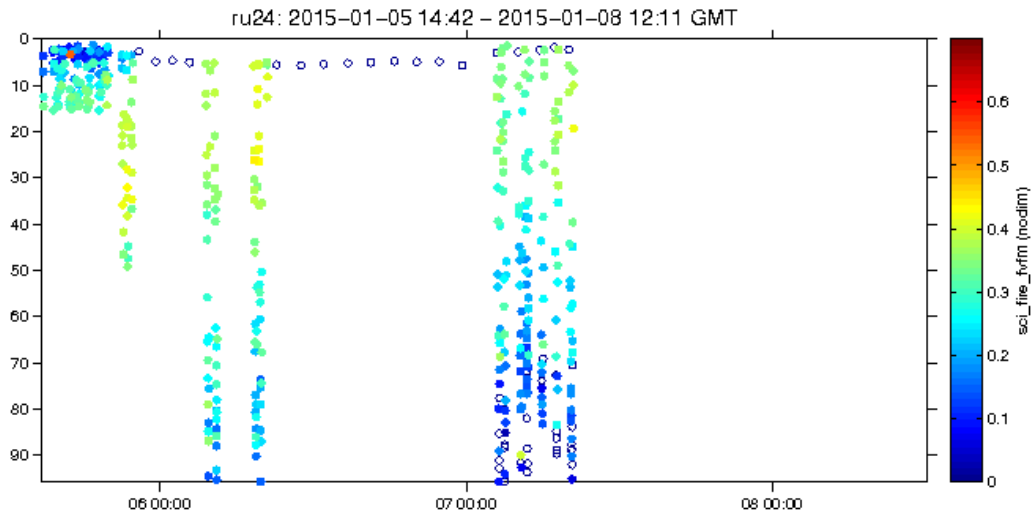
d. GLIDERNAME_chlor.png – This is a glider profile of chlorophyll in the water column across the glider transect since it was deployed. The surface of the water is the top of the profile and the bottom of the profile is 100 m, the deepest the glider dove down to. The x-axis is time. The units are micrograms per liter of ocean water. Red indicates higher concentrations of chlorophyll and blue indicates lower concentrations to zero chlorophyll.

e. GLIDERNAME_salinity.png - This is a glider profile of salinity in the water column across the glider transect since it was deployed. The surface of the water is the top of the profile and the bottom of the profile is 100 m, the deepest the glider dove down to. The x-axis is time. The units are PSU which stands for Practical Salinity Units, which is roughly equivalent to ppt. Red indicates higher salinity and blue indicates lower salinity.

f. GLIDERNAME_temp.png - This is a glider profile of temperature in the water column across the glider transect since it was deployed. The surface of the water is the top of the profile and the bottom of the profile is 100 m, the deepest the glider dove down to. The x-axis is time. The units are degrees Celsius. Red indicates warmer temperatures (but still not warm) and blue indicates cooler temperatures.