

## How to Read CONVERGE Google Earth Layers Data Primer

Overall Notes about the data:

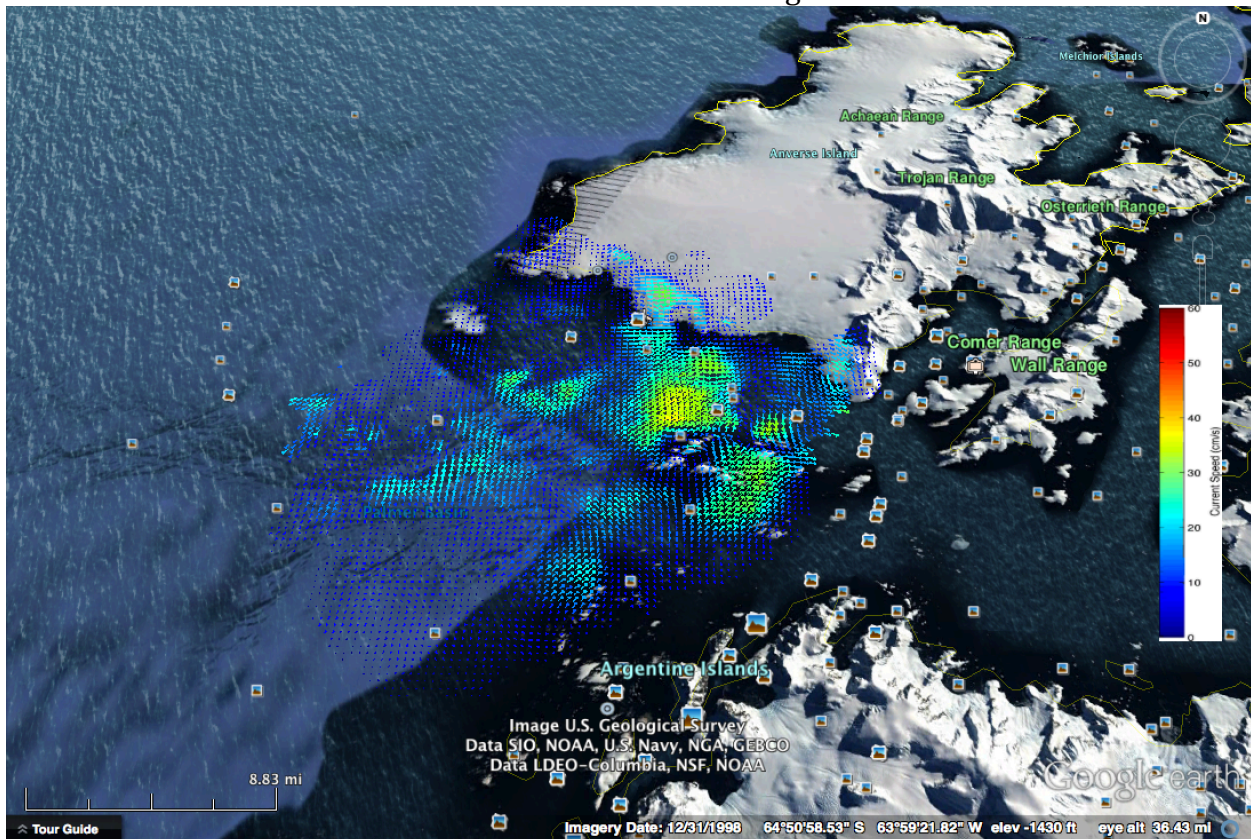
- Everything is in Greenwich Mean Time (GMT), which is 5 hours ahead of the east coast.
- All time is presented in military time, which means it is from 0:00 (12:00am) to 23:59 (11:59pm).
- Wind measurements are in m/s and surface current measurements are in cm/s, check the units carefully when looking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

### 1) Google Earth Layers

Notes about Google Earth: to see the distance scale bar go to View and select Scale Legend. This will add a scale bar in the bottom left corner of the screen (you may need to minimize the Tour Guide of pictures along the bottom if that is showing).

#### a) CODAR

- Latest map and latest 25 hour average map updated in real-time* – This layer is a map that updates in real time an average of the surface currents over the last 25 hours. These data are compiled from three CODAR stations. Blue arrows mean slower surface currents and red arrows mean faster surface currents. The direction the arrow is pointing indicates the direction in which the water in the surface current was moving.

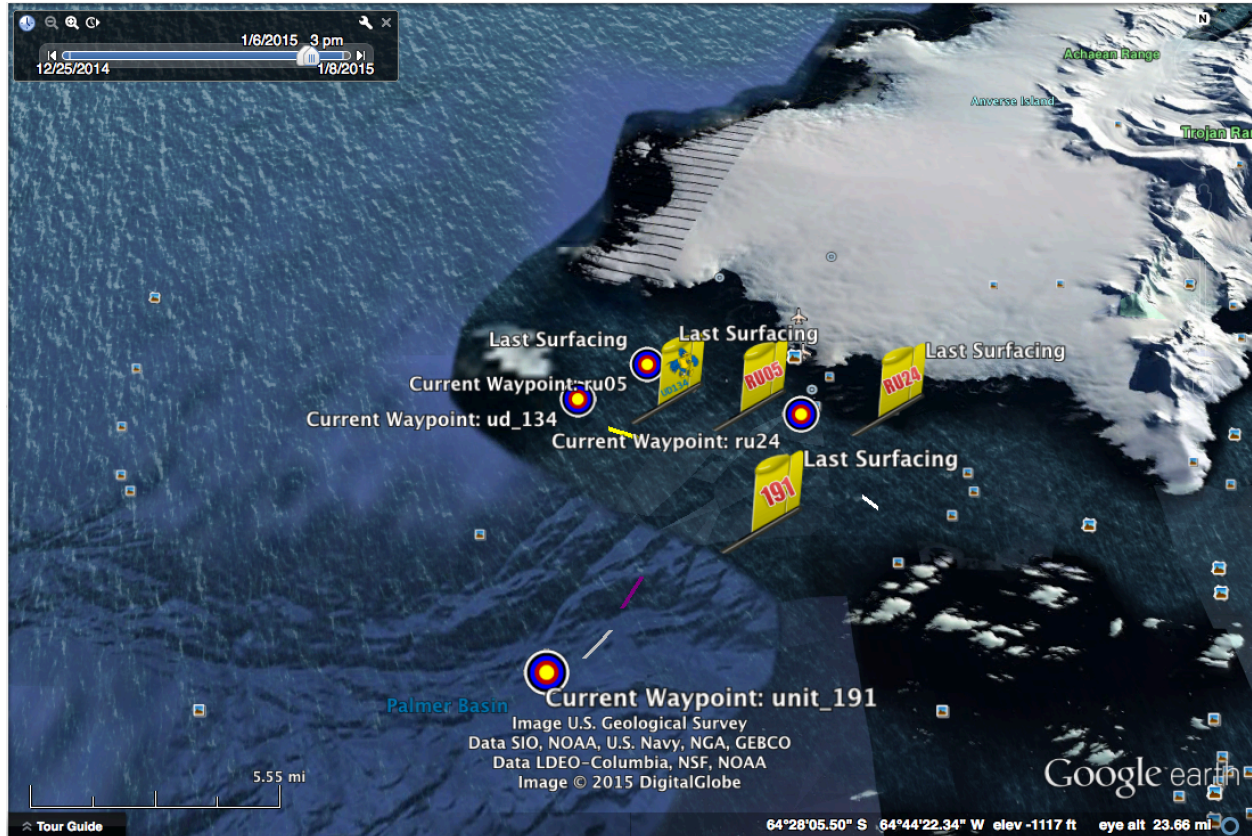


- a. *Daily files with hourly raw maps with time slider (still to come)* - This will be a directory of daily files. Each file will contain 24 surface current maps, one for each hour of the day. These data are compiled from the three CODAR stations. Blue arrows mean slower surface currents and red arrows mean faster surface currents. The direction the arrow is pointing indicates the direction in which the water in the surface current was moving.

**b) Glider**

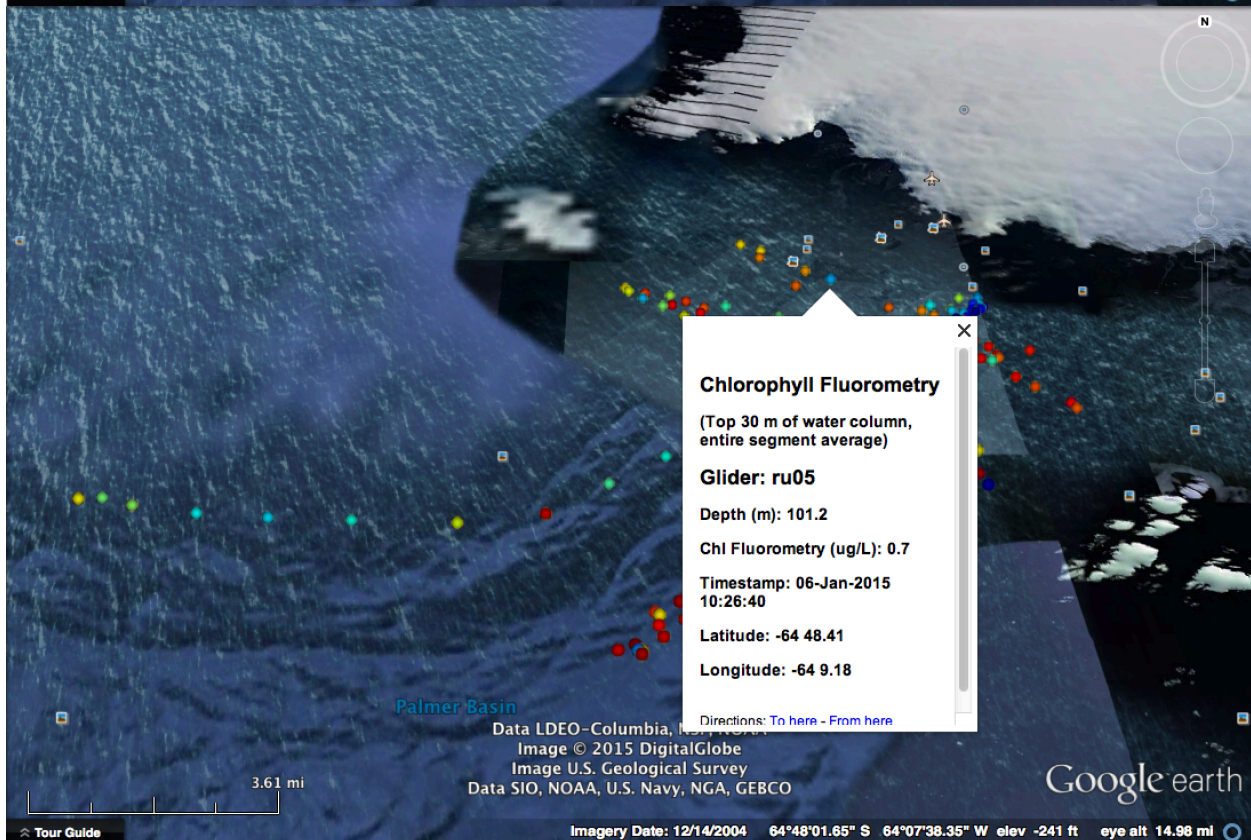
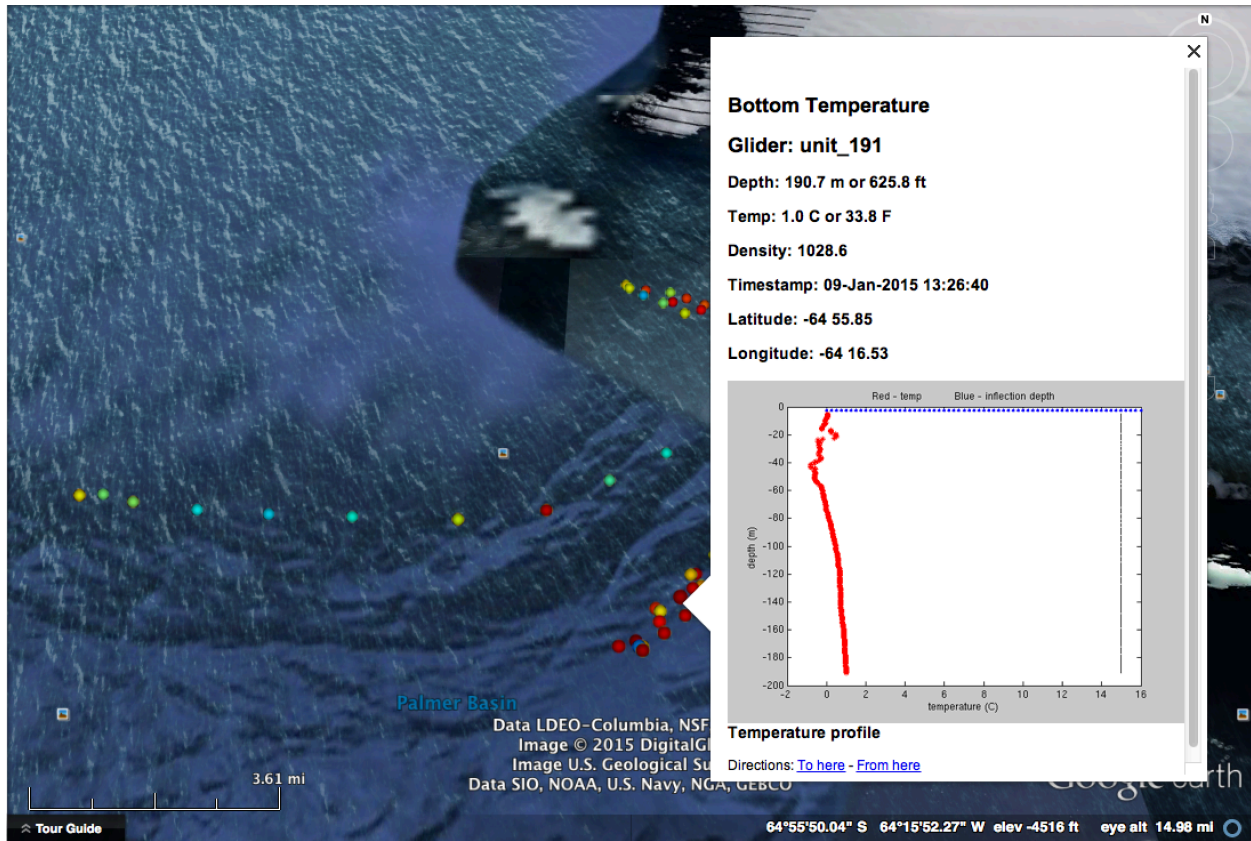
- a. *Mission tracks with time slider and depth averaged velocity vector per segment* – This layer is a map that plots the location of the four gliders over time in the project. The speed of the glider movement is calculated by averaging the velocity of the glider per segment while it was “at depth,” aka underwater. A segment is the time and distance the glider travels between each waypoint at the surface to relay data back to the scientists. The glider tail fins (yellow with the glider name) indicate the location of the glider when it last called into the scientists at the ocean surface. The white/blue/red/yellow targets indicate the deployment location, last surfacing location, and/or current waypoint for each glider (depending on what time period you look at). The time period of the glider movement is in the time series bar in the upper left corner of the screen (you can drag the carrot back and forth to change the time or select the clock with an arrow icon to play the time slider animation). The four gliders are represented by different colors:

- i. Yellow – blue\_hen/UD134
- ii. Purple – RU24
- iii. White – RU05
- iv. Grey – RU191



- a. *Along-track segment averaged fluorescence (upper 30 m) and bottom temperature* – This layer plots some of the water quality data the gliders are recording. Each dot represents the average value for either temperature or fluorescence for each segment. A segment is the time and distance the glider travels between each waypoint at the surface to relay data back to the scientists. The average temperature data are calculated from all of the temperatures along the bottom portion of the gliders path (at 100 m). Fluorescence is the measurement scientists take to quantify the amount of phytoplankton in the water. The average fluorescence data are calculated from all of the fluorescence data the glider collected when it was between the surface and 30 m deep. If you click on a dot, two dots with attached lines to the dot you selected will appear. For every dot you can see which glider the data point is from, the location (latitude, longitude, and depth) or the glider during that segment and the time it traveled through that segment (timestamp). The upper dot is the calculated average temperature data and the lower dot is the calculated average fluorescence data. Red dots indicate warmer temperatures or higher fluorescence values. Blue dots indicate cooler temperatures or lower fluorescence values.

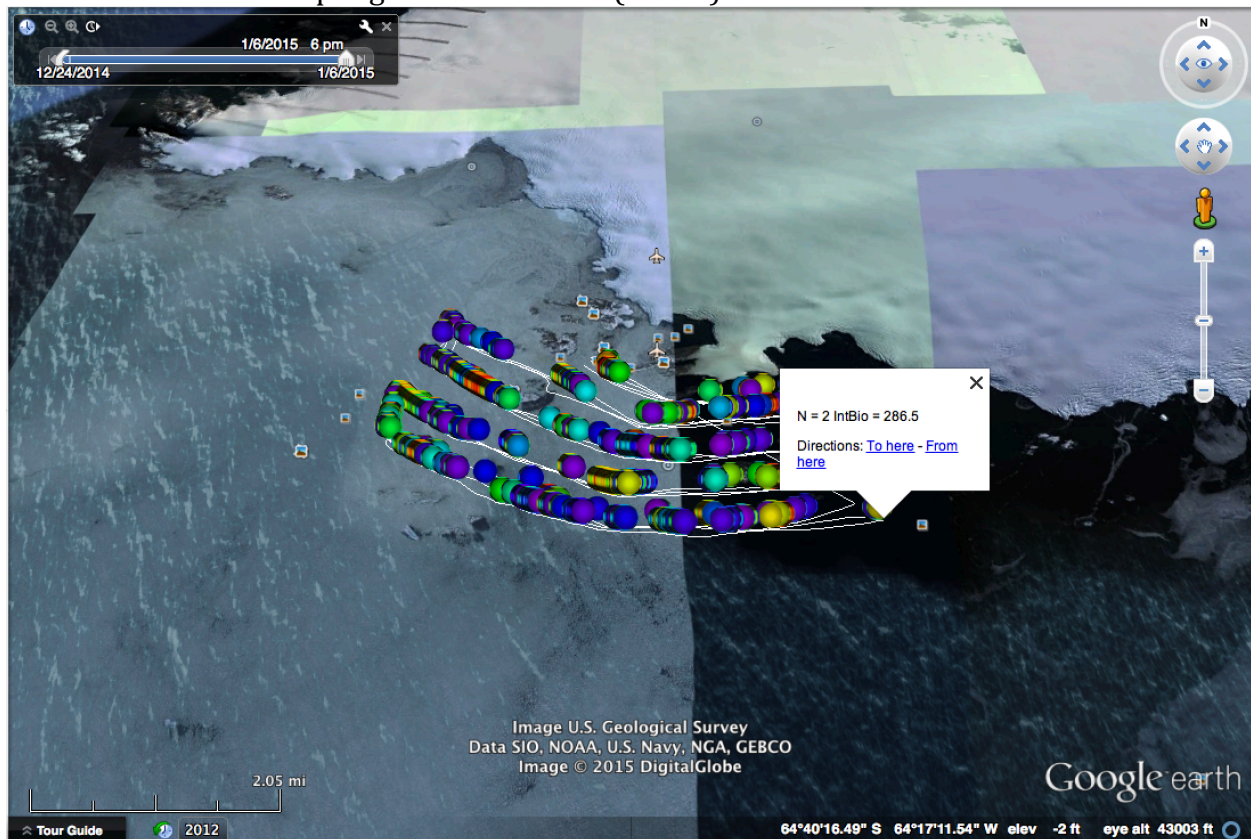






### c) Krill acoustic surveys –

- a. *Track location with depth average krill integrated biomass* - This layer is displaying all of the paths that they are taking in the zodiac (small boat) to do the acoustic surveys with the echosounder. The path that the boat traveled is called the track location and is shown in the white lines. There are multiple track lines each representing a different time they conducted a survey. The time of the survey is in the time series bar in the upper left corner of the screen (you can drag the carrot back and forth to change the time or select the clock with an arrow icon to play the time slider animation). Along the track location line there are dots that represent different sampling sites from the survey. The blue dots indicate lower krill biomass and the red dots indicate higher krill biomass in that sample. If you click on a dot you can see the sampling site number (N) and the averaged integrated biomass of krill at that sampling site at that time (IntBio).

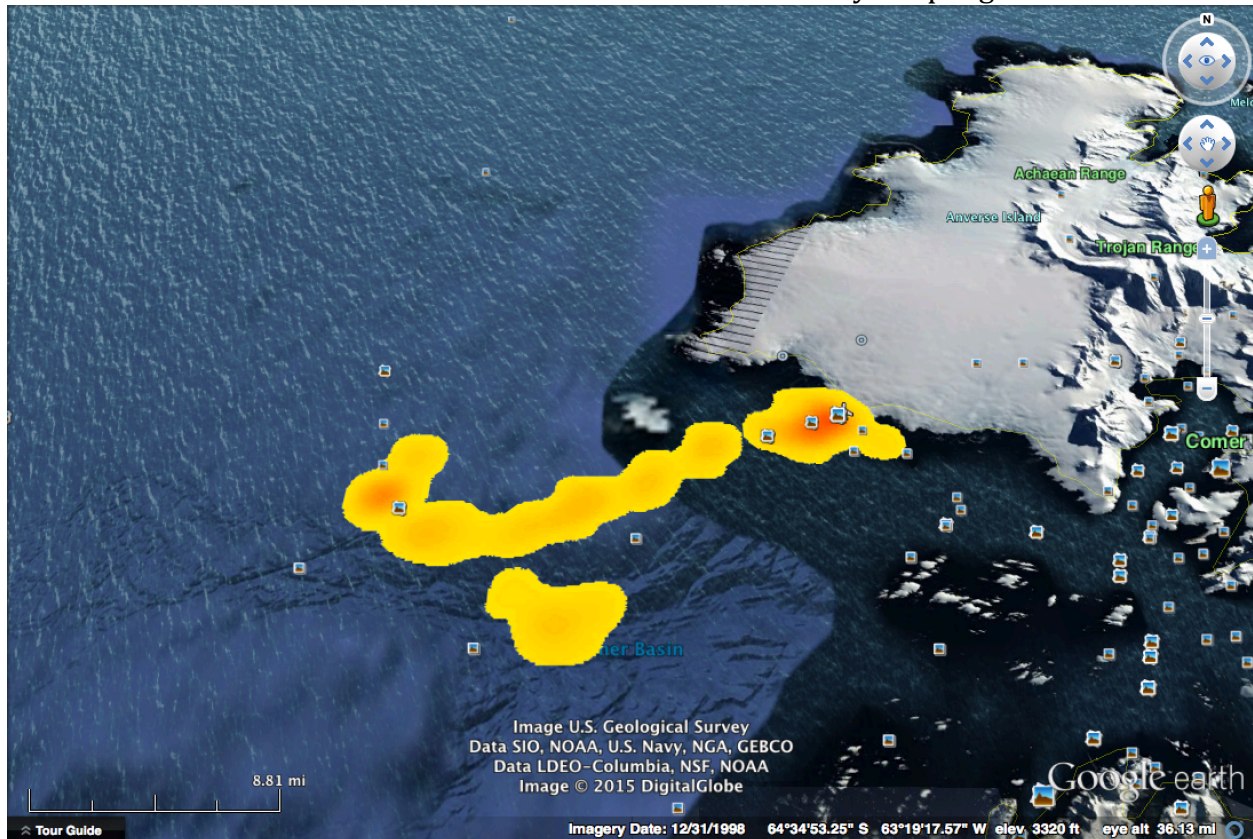


### d) Penguin Tracks

- a. *All individual penguin tracks* – This link will take you to a directory of all of the maps of the track locations for each penguin. For the time during which each penguin was tagged there will be a track of where the penguin went. Moving the time slider will show when each penguin started and ended its track. You can adjust the time slider to show specific time ranges for these data. On the left hand side bar, this Google Earth layer will list each penguin by species and sex. The species identifiers are: ADPE = Adélie Penguin and

GEPE = Gentoo Penguin. The M or F following the species identifier stands for Male and Female. As penguins are tagged during the season, this layer will become more and more populated as each new penguin's track is added.

- b. *Mean kernel density – Adelines (yellow)* – This layer plots the mean kernel density (habitat use) of the tagged Adelie penguins over a one hour time period. Yellow colors indicate less habitat use over time by the penguins and red colors indicate more habitat use over time by the penguins.



- a. *Mean kernel density – Gentoos (green)* – This layer will plot the mean kernel density (habitat use) of the tagged Gentoo penguins over a one hour time period (once the science team tags Gentoo penguins after the chicks get bigger). Green colors indicate low habitat use over time by the penguins and yellow colors indicate high habitat use over time by the penguins.