AOS 103

Week 1 Discussion

Discussion Logistics

- **Fridays**
  - **10:00-11:00 (1C) MS 7124B**
  - **11:00-12:00 (1D) MS 7124B**
- **TA: Daniel Dauhajre**
  - **ddauhajre@atmos.ucla.edu**
- **Office hours Thursday 2:30-4:30PM (or by appointment) in MS 7101 (AOS Computer Lab on 7th floor of Math Sciences)**
- **Office: 9277 Boelter Hall (roof of Boelter Hall)**
- **http://people.atmos.ucla.edu/ddauhajre/teaching.html (I will be posting discussion material here, and emailing out the link each week)**
- **If you ever have any questions about applying to graduate school in oceanography (or any environmental/engineering/geophysics field really) feel free to send me an email and ask me how to go about it. There's no set path or way get into a PhD program in science**

Setting expectations for the quarter…

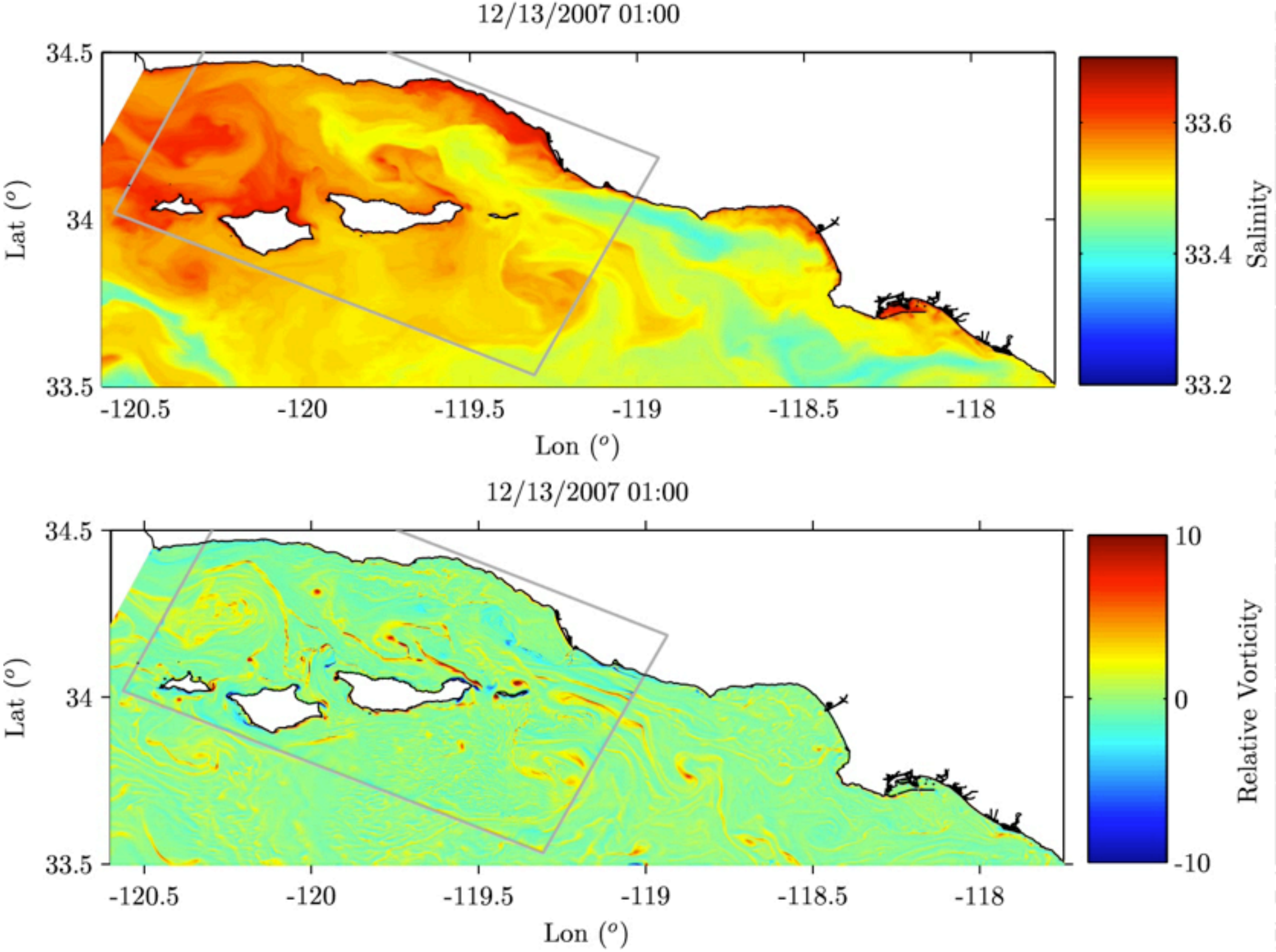
What kind of knowledge you can (and should attempt to) get out of this class

How will discussions be run?

Problem Solving Tip

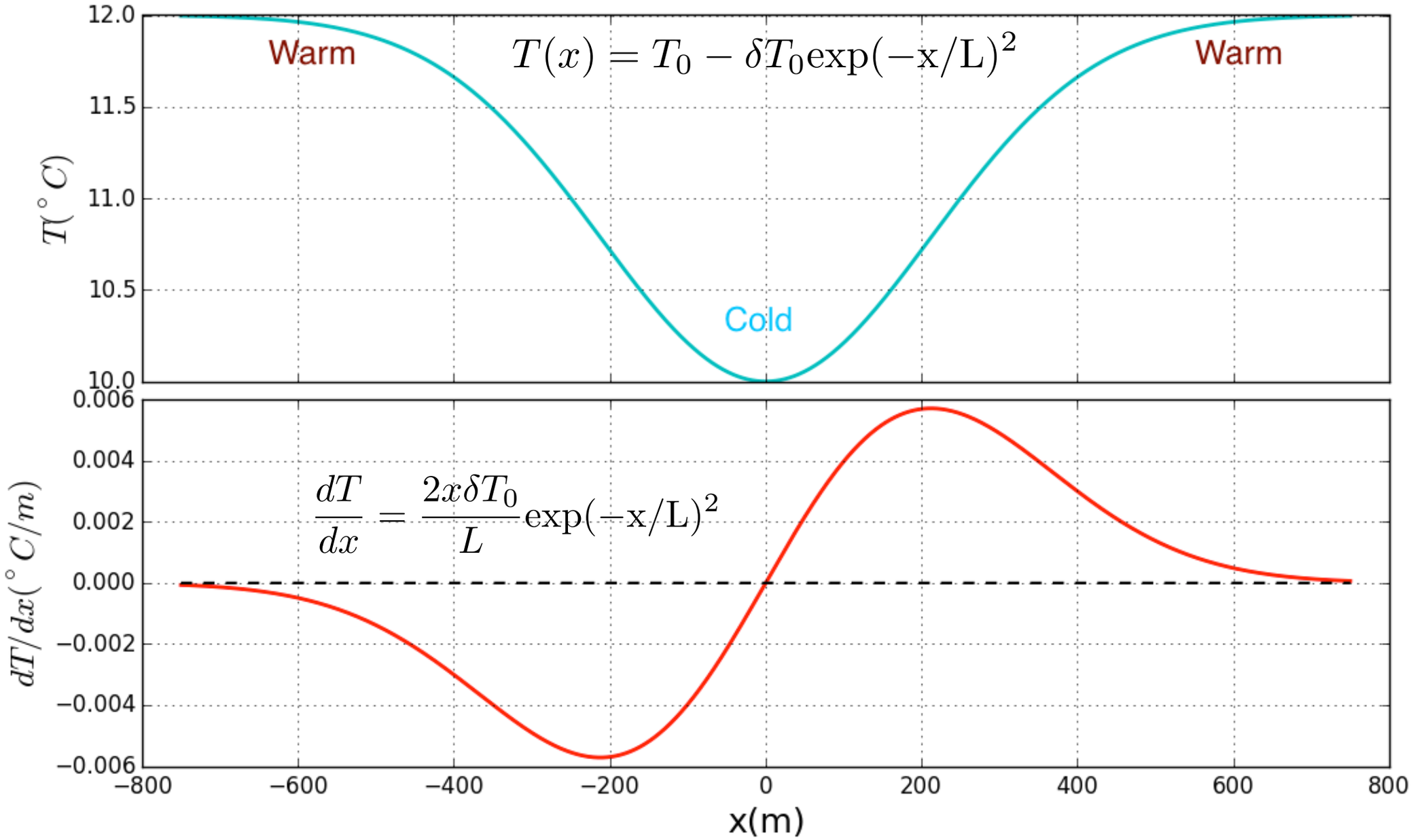
If you have no idea how to solve a problem (clicker quiz, exam, etc.)…<u>just see what units the answer should have, and work backwards from there</u>

Why math, why calculus?

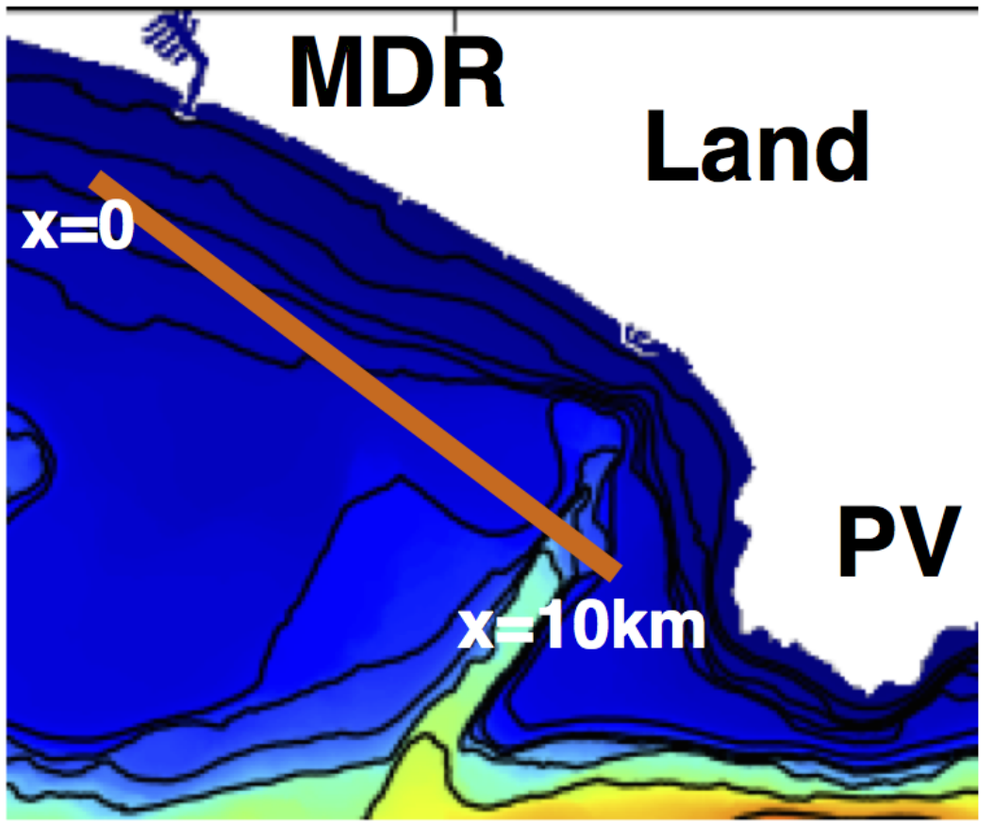


Model and video made by Leonel Romero at UCSB

Differentiation (Derivatives)

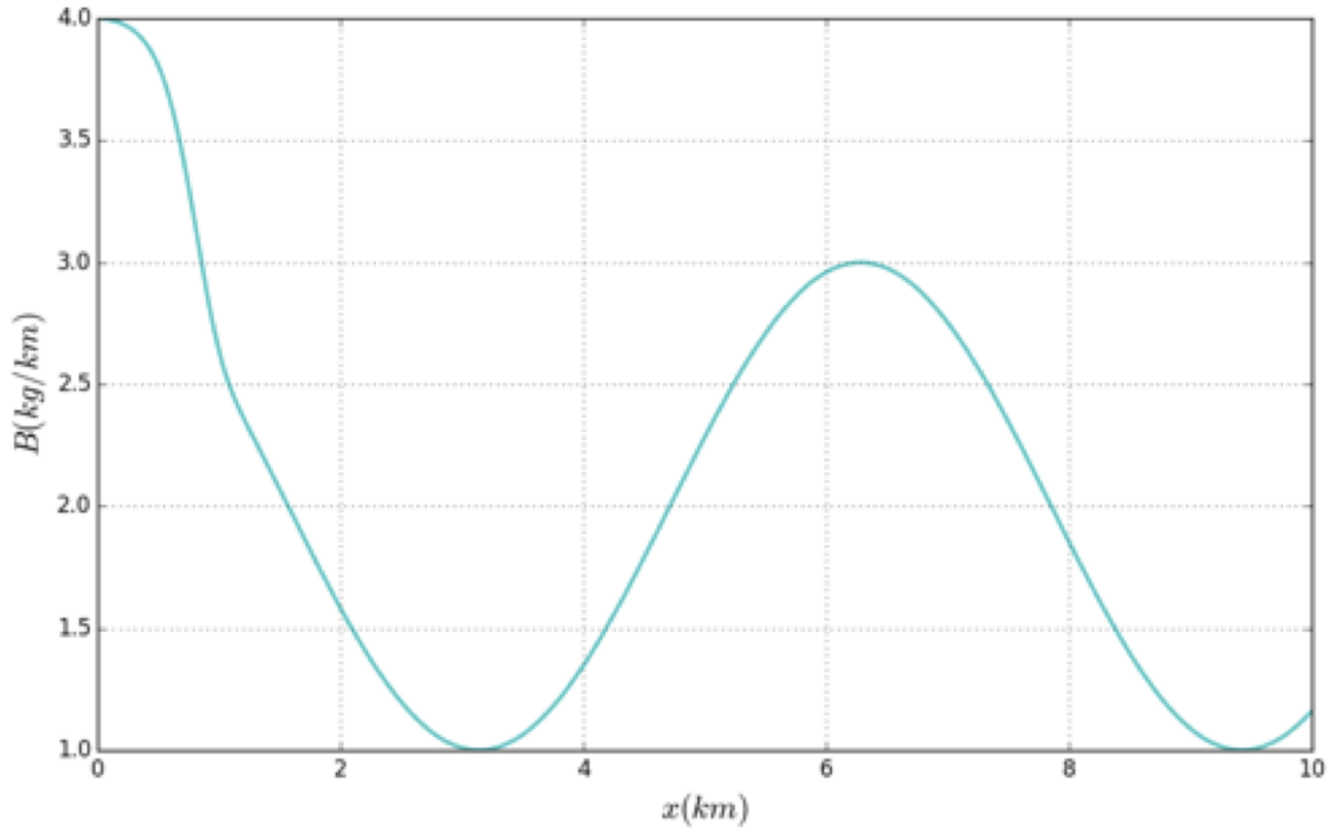


Integration



Measure (calculate) biomass along a line

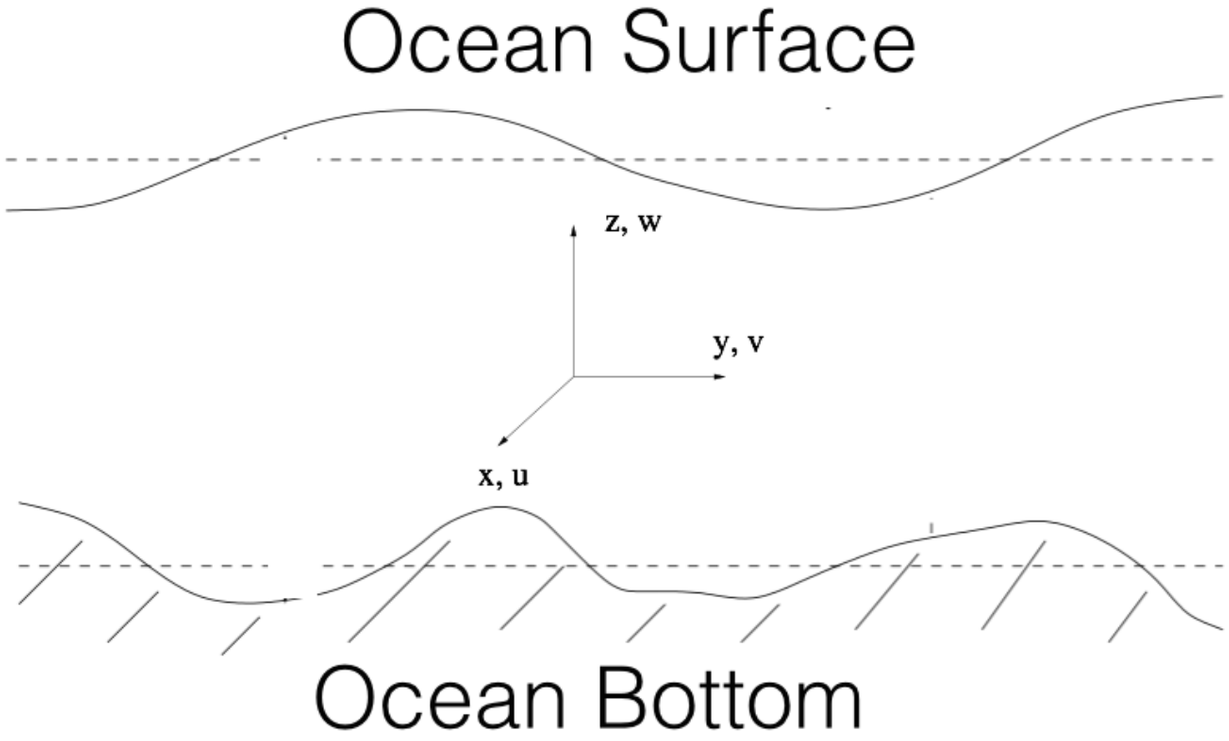
$$B(x) = 2 + 0.1x^5 + \cos(x)$$



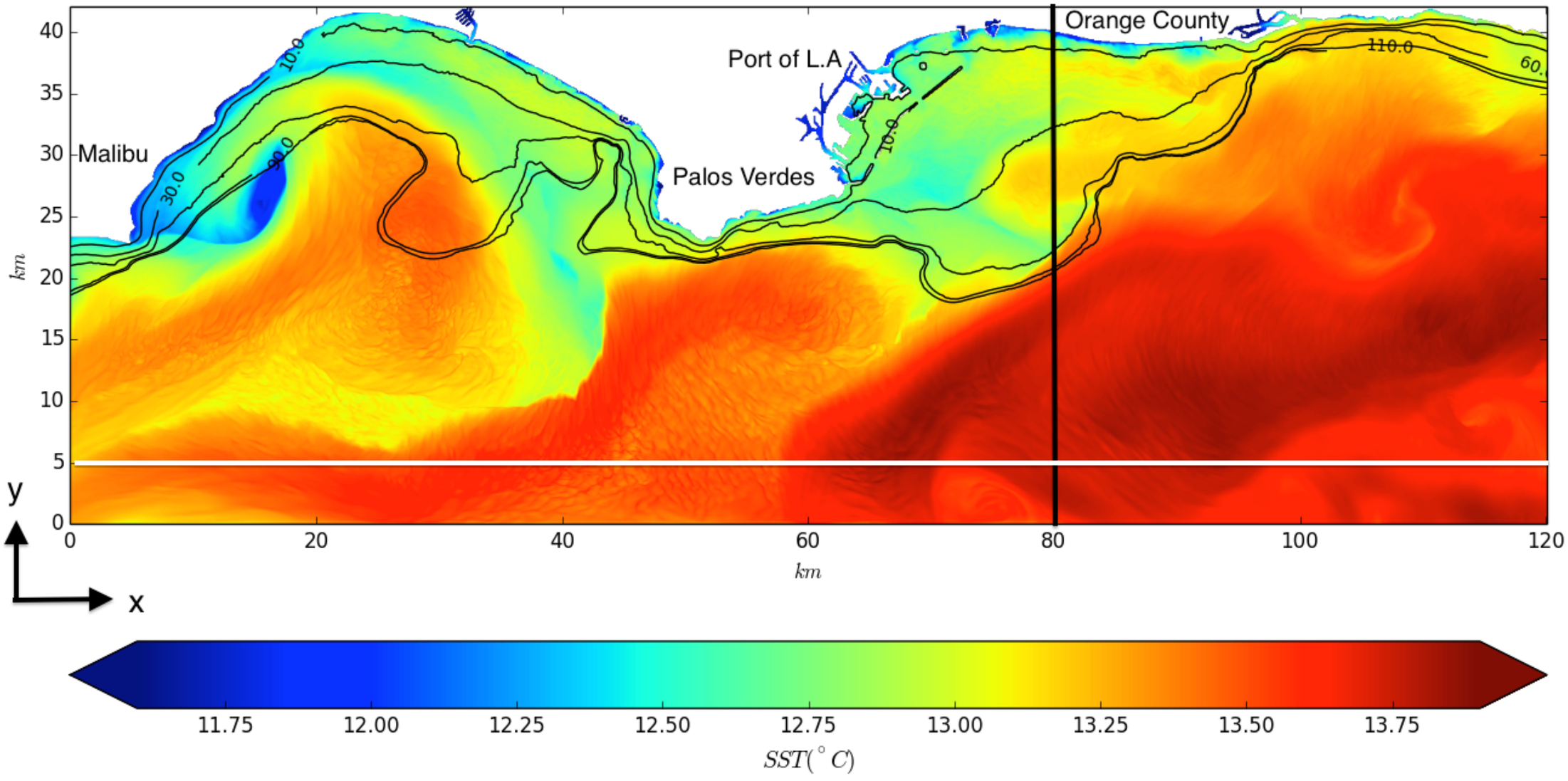
Scalars and Vectors

What are some ocean scalars?

What are some ocean vectors?

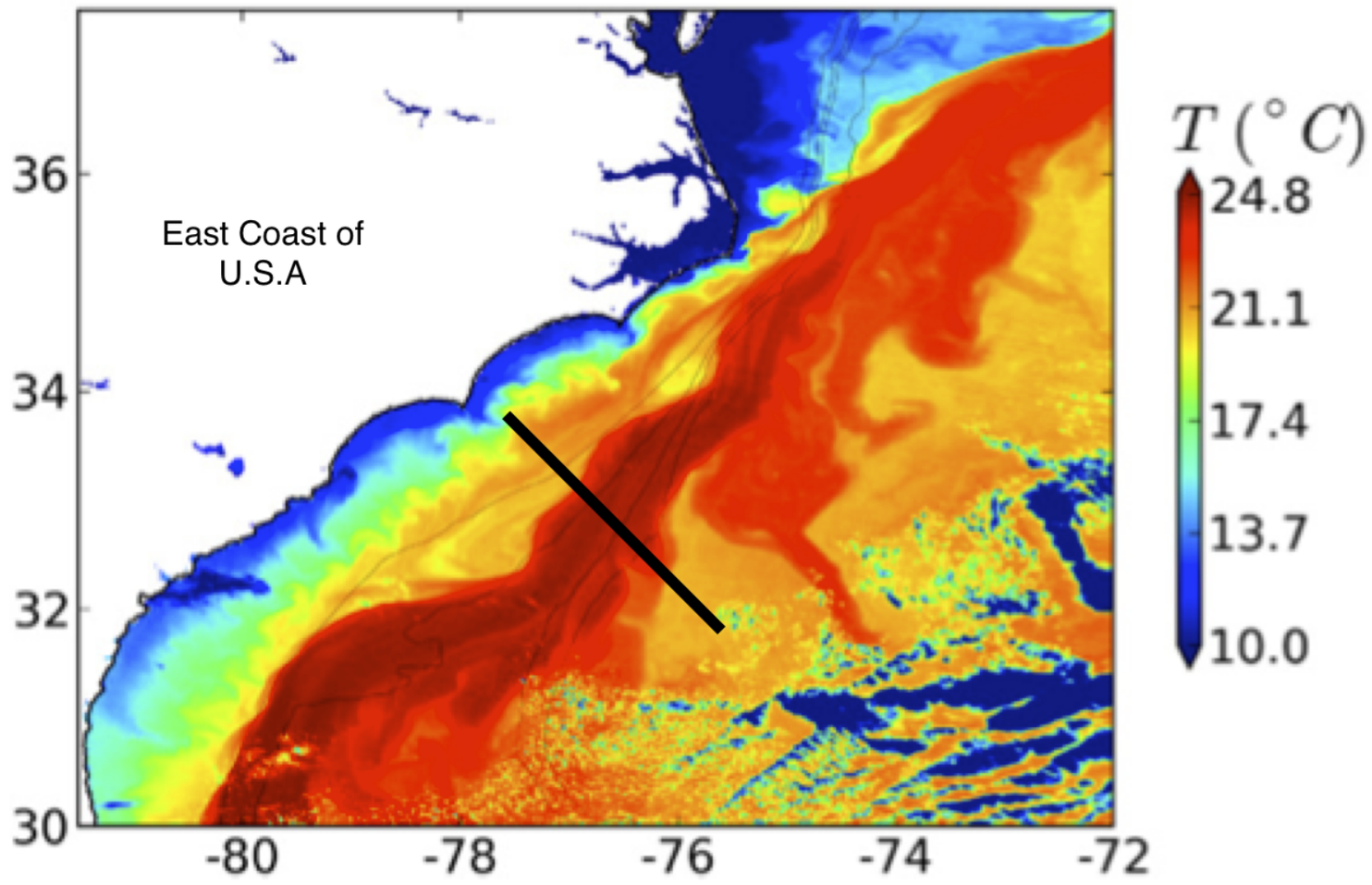


Partial Derivatives



Area Integrals

How can we calculate transport of something through some part of the ocean?



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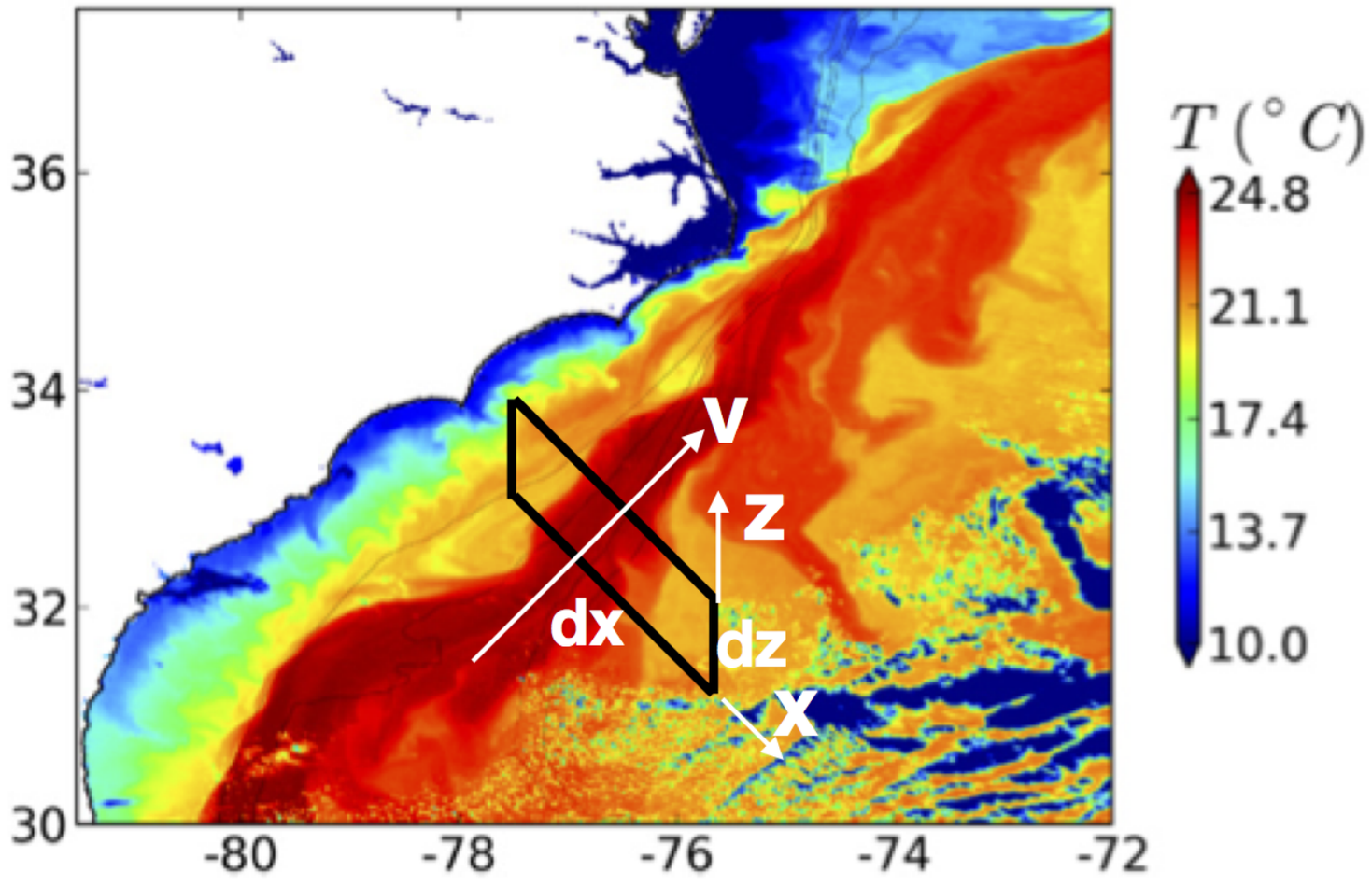
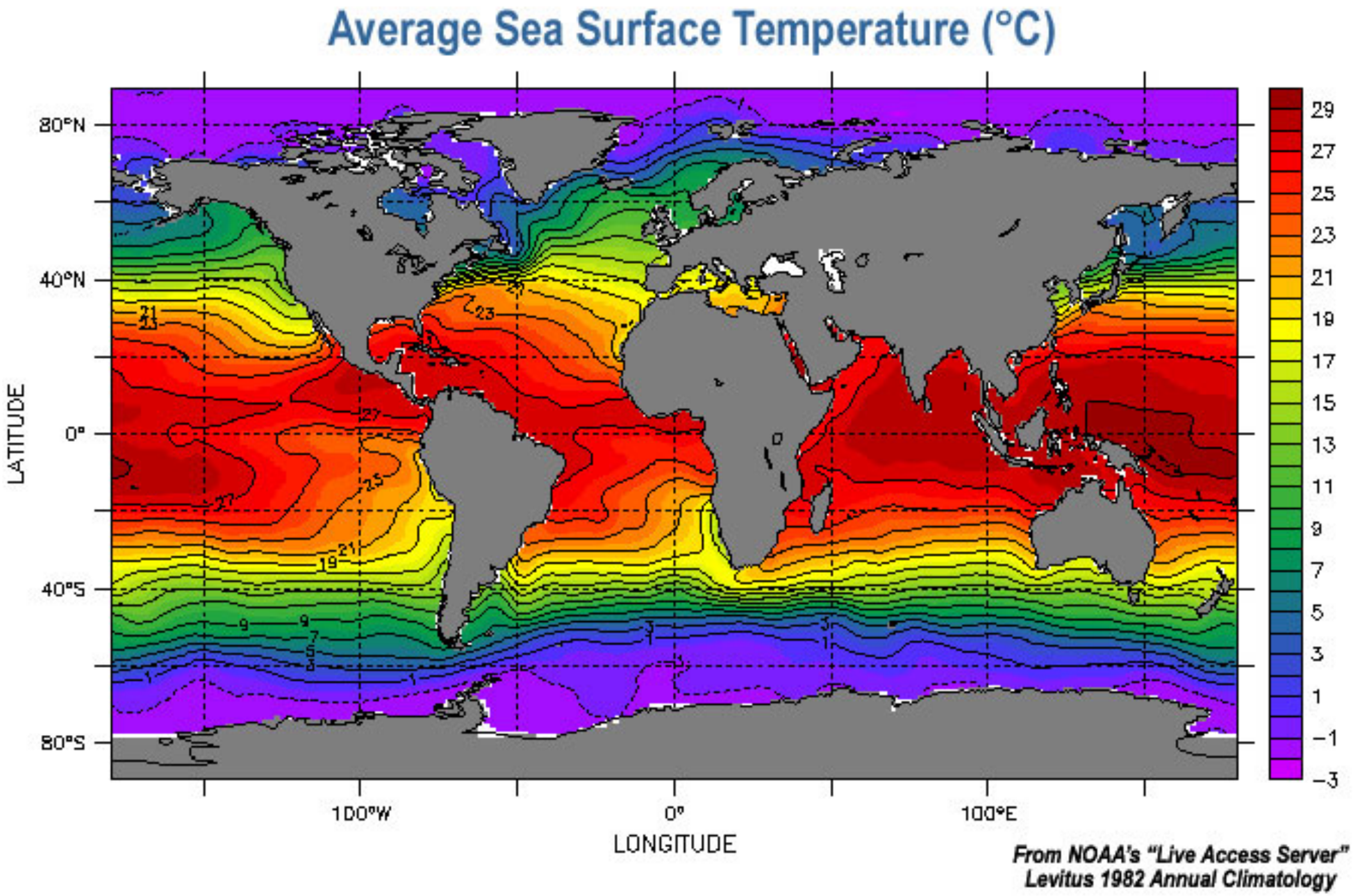


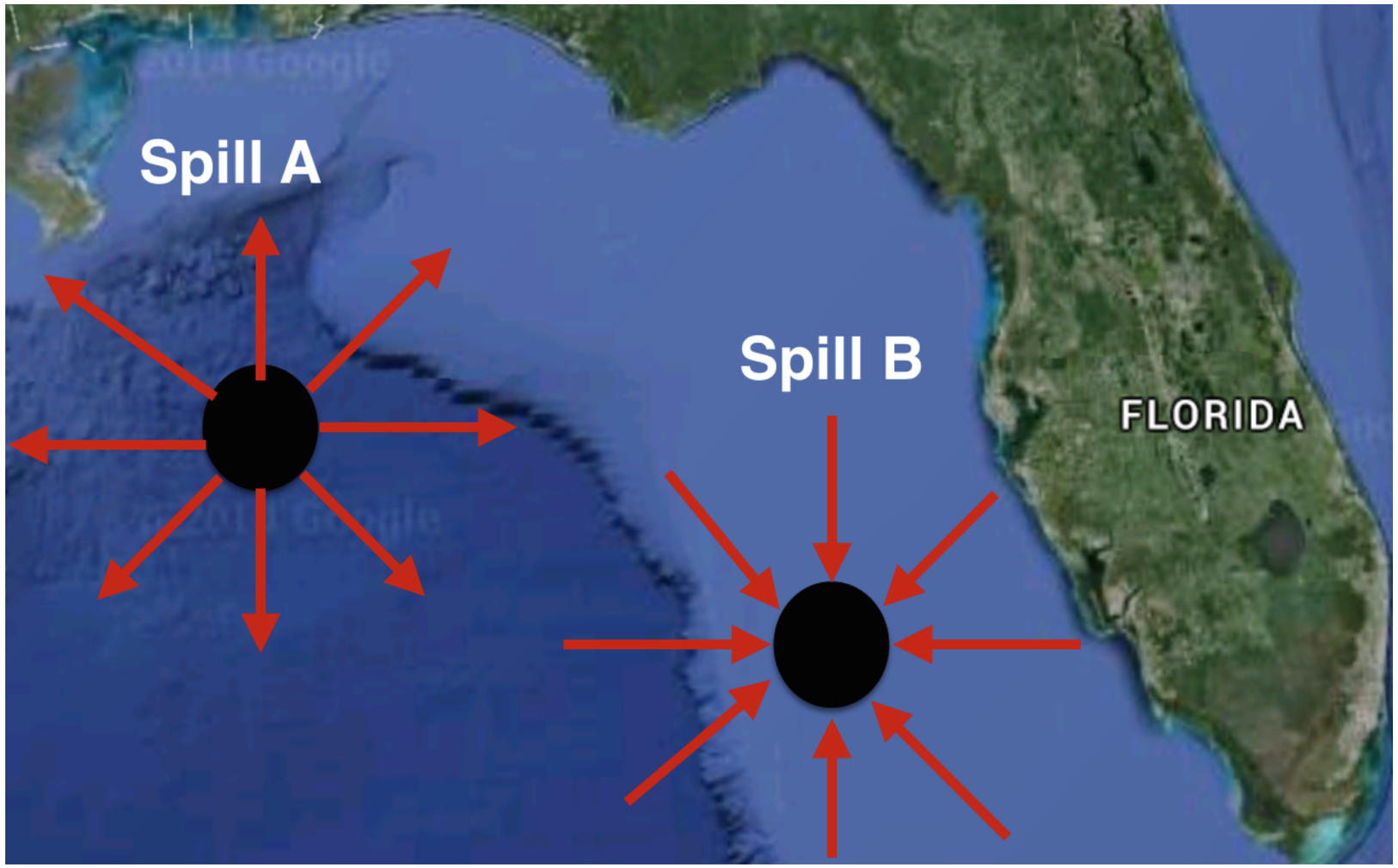
Gradient

Can you see/draw the gradients on this map?



From NOAA's "Live Access Server"
Levitus 1982 Annual Climatology

Divergence



What will happen to each of these oil spills?

Curl