

# Geophysical Fluid Dynamics

PHYS 527

Fall 2016

## Problem Assignment # 1

due 08-31-16

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1. **Mass continuity** (2 points)  
Vallis problem 1.3.
2. **Fluid flow** (5 points)  
Vallis problem 1.7
3. **Expanding gas** (5 points)  
Vallis problem 1.9
4. **Ideal gas** (10 points)  
Vallis problems 1.12, 1.14
5. **Potential temperature** (8 points)  
Vallis problem 1.15
6. **Adiabatic temperature change** (5 points)  
Vallis problem 1.18
7. **Sea level rise** (10 points)  
Vallis problem 1.20

### Research paper: Abstract proposal

This is the first assignment related to the paper. I'm looking for a conference-style abstract to propose your research topic. I encourage you to collaborate with your research advisor with respect to choosing a topic. If it is appropriate, an introduction to a manuscript, independent study paper, thesis, or dissertation (or parts of) are all appropriate. However, whatever you write must be started from scratch (not a revision of previous works). The abstract is due **September 7**. If you have any questions, or would like to discuss topics prior to writing an abstract, please contact me.

Here is the scoring breakdown:

What I'm looking for	points
Relevant to GFD?	5
Problem or topic clearly stated?	10
Statement of relevance (why is this important?)	10
Supporting material (how do you know it is important?)	10
Logically organized?	10
Correct grammar, sentence structure, etc.	5

I know writing is hard! Please do the best you can, but understand that the purpose of the paper is to help improve scientific communication skills (I don't expect them to be perfect). Therefore, I will edit and provide feedback for up to 2 revisions of your abstract before I record a final grade.