

Mini Case Study

For this assignment you will build a case study of a cyclogenesis event that took place on 12-13 November 2003. First, you will describe the evolution of the three-dimensional structure of the cyclone in a synoptic overview. Next you will create a set of questions regarding the case, and propose a list of diagnostics you will use to answer those questions. Finally, you will write up the results of your diagnosis, and revise your overview to create a complete analysis. Details of each step of the project are included below.

1. Synoptic Overview: Due Thursday, 13 October (15 pts)

A synoptic overview presents the evolution of the cyclone you are investigating. An effective synoptic overview is concise but comprehensive, as should be the figures you choose to include in your description. Remember to pay attention to the relative position of the upper/mid-level features with respect to the surface cyclone. Do not attempt to diagnose the observed development in this section – this is purely descriptive. Keep your description to 2-3 pages double-spaced, and 2-3 figures.

2. Questions and Method: Due Thursday, 20 October (10 pts)

Once you have a sense of the narrative of this case, you will proceed to evaluate the relative contributions from specific dynamical processes. One week after you turn in your synoptic overview, you will hand in the primary one/two questions you plan to answer in your diagnosis and a list of diagnostics you plan to use in answering those questions. The key here is to focus your attention to a particular aspect of the cyclone's development. These questions will be the focus of a conference each of you will have with Prof. Martin in which you will describe your intended analysis and the means you will use to pursue it.

3. Final Overview and Diagnosis: Due Thursday, 10 November (25 pts)

For this part you will write up the results of your diagnosis, as well as a revised synoptic overview and brief conclusion. Together these components will compose a complete case study. You will be responsible for making corrections to your synoptic overview as noted in the comments you receive from me.

For your new diagnostic section, make sure that every panel and every diagnostic you discuss is relevant to the questions you have chosen to answer. The organization of your results will require some thought; make your argument as clear as possible to the reader. Careful consideration of your figures will be crucial to a clear analysis, so choose your figures well before this assignment is due, and write using only those figures. This is all your audience will be provided to understand your case, so it is all you should need to write your analysis. Lab 10 will be extremely useful in this part of the assignment, but you are not limited to the diagnostics we use in that lab. GEMPAK is an extremely comprehensive program that I encourage you to explore beyond what we have time to cover in lab. The final product as a whole should clearly illustrate what happened, highlight one interesting aspect of what happened, and then diagnose what happened. A brief conclusion should wrap up what was described in each section. The diagnosis and conclusion should be about 3-4 pages and max. 3-4 figures.