Exploiting AD in PyDDA

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Algorithmic Differentiation (AD), also known as Automatic Differentiation, is a tool that is used to compute function derivatives in a methodological way. **Pythonic Direct Data Assimilation** (PyDDA), is a community framework that helps model radar wind retrievals.

- These models are configured through the gradient-based minimization of cost functions that are currently hand coded.
- **Research Goal:** To implement JAX within PyDDA to more effectively compute the gradients of these cost functions

Hurricane Florence
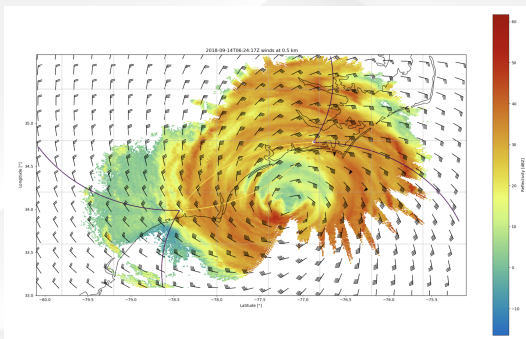
To better understand the difference between the optimizer behavior using JAX vs the hand-coded gradients

- To improve overall runtime
- To continue to make code improvements to help with convergence of data
- How AD can be used in future projects