Limit on predictability: the atmosphere is "chaotic."
- sensitivity to initial conditions.
- we can only observe to certain accuracy.
- theoretical limit ~ 7-10 days.

Different approach: ensemble prediction; statistics.

Data assimilation cycle:
  i) data quality control.
  ii) objective analysis.
  iii) initialization.
    - dynamical filtering to remove spurious oscillations introduced by the objective analysis.
  iv) short forecast.
    - gives next first guess.

3) Prognosis

- Numerical representation of governing equations.
- integrate forward in time to create a forecast.