NCAR's Data Assimilation Initiative...

...leads a research community for data assimilation where individuals benefit from sharing ideas, methodologies, software tools and access to a data assimilation testbed.
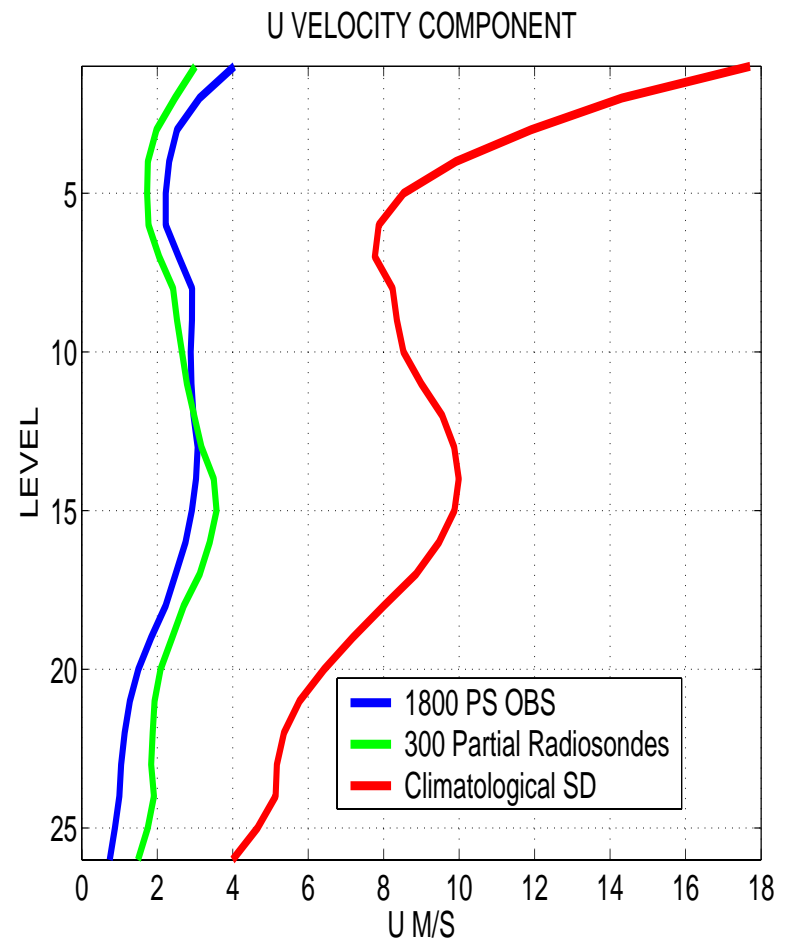
Strategic Approach: Use Data Assimilation Research Testbed (a software system that facilitates the combination of assimilation methods with models and data) to *Focus Diverse Efforts*.

DART assimilation system developed for CGD's CAM. Research Application: evaluate analysis errors from different idealized observation sets.

DART also applied to:
➔ WRF
➔ GFDL Global GCM
➔ NCEP global model (GFS)
➔ Exercises for ASP summer colloquium

U VELOCITY COMPONENT

Legend:
- 1800 PS OBS
- 300 Partial Radiosondes
- Climatological SD

Y-axis: LEVEL (5, 10, 15, 20, 25)
X-axis: U M/S (0, 2, 4, 6, 8, 10, 12, 14, 16, 18)

Notes on the figure: These are results from synthetic observation (perfect model) assimilation experiments with the standard resolution (T42 L26) version of CAM used for climate prediction applications. The red curve shows the global mean of the climatological standard deviation of the U wind component as a function of model level from the surface to the model top. The other curves show the global mean RMS error from assimilations conducted using the DART system. The green curve comes from a set of 300 randomly located simulated radiosondes observed every 12 hours. The blue curve is from 1800 randomly located surface pressure observations available every 12 hours. Both cases produce analyses in which the error is reduced far below the models climatological standard deviation. The surface pressure observations (blue) are somewhat better near the surface while the radiosondes, although less dense horizontally, produce better results aloft.