



# Using Loon Balloons to Improve Wind Speed Measurements in Remote Areas



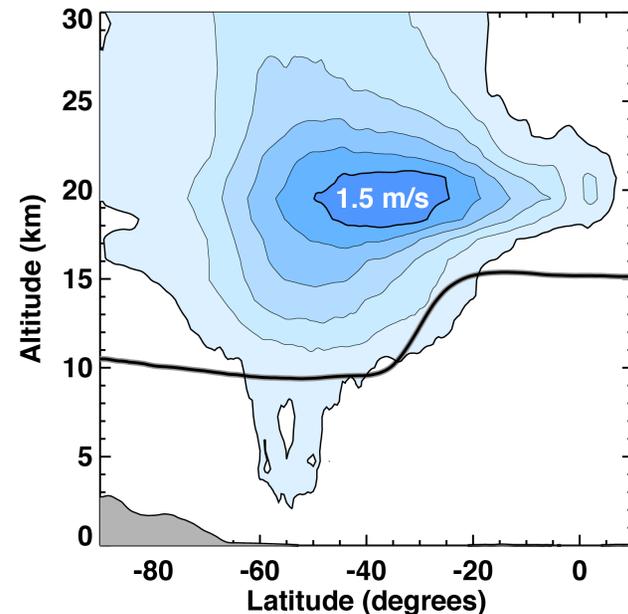
Author  
Lawrence Coy

**Science Question:** Can we use a fleet of commercially-operated balloons (Loon) over the Southern Hemisphere and tropical oceans, to improve our meteorological analyses and models of the atmosphere?

**Finding:** The Loon network of stratospheric super-pressure balloons was designed to bring Internet to remote communities. Now, the NASA Global Modeling and Assimilation Office (GMAO) has added wind speeds derived from positions of the Loon balloons to the Global Earth Observing System (GEOS) data assimilation system (DAS).

In August 2014, the Loon balloon fleet was located in the southern hemisphere lower stratosphere, a region that has almost no *in-situ* wind observations. The panel shows the impact of adding these data into the GEOS system – it shows east-west wind differences between using and not using these data. There were significant changes in wind speed values in our model at the level of the Loon balloons.

**Impact:** Our results demonstrate that using observations of the Loon balloon fleet can improve our meteorological analyses, and can potentially improve our ability to forecast the Earth System, as well as produce more accurate wind analyses for studies of ozone and aerosol transport in the lower stratosphere, which aid in satellite data interpretation. In addition, Loon balloons can remain in the stratosphere for months, and hundreds of Loon balloons have been launched, providing a consistent set of wind observations in the stratosphere in remote regions.



Impact of assimilating the Loon balloon wind data on winds in the GEOS system (with minus without the data)