

High Vertical-Resolution Sounding Data Archive: Transition from PI-Based Research Data Collection to Institutional Data Stewardship

Vision:

- Improve understanding of fine-scale atmospheric structures and processes.
- Enable observational studies of phenomena with vertical dimensions that span the scales below those of standard radiosonde data resolution: gravity waves, turbulence, tropopause, planetary boundary layer.
- Make full scientific use of existing radiosonde observational capability. Radiosonde data are taken at high vertical resolution, so make these data available.

History:

- Since 1950s, operational radiosonde data have been reported at lower resolution than observations were made (mandatory and significant levels only).
- Gravity wave community requested 6-sec resolution data (Hamilton and Vincent, 1995)
- NSF has been funding PI access of US high-resolution radiosonde data, its free dissemination and research projects using these data.
- SPARC Data Center, funded by NASA, has been serving as an unrestricted access point for these data.

Status:

- NOAA providing US high-resolution radiosonde data to the NSF PI at Stony Brook University, at a current cost of \$1200 per year for both 6-s and 1-s resolutions.
- These data are then made freely available through the SPARC Data Center, which has been funded by NASA.
- NSF support ending soon; NASA SPARC Data Center funding is problematic, at best; SPARC Data Center Scientist leaving Stony Brook; and NSF/NASA PI will be retiring from full-time work before too long.
- Large (>100) and growing community of international data users.
- Availability of high-resolution radiosonde data continues to enable unforeseen, new science advances.
- US high-resolution data are unique in their easy and unrestricted availability.

Need:

- More stable and long-term commitment to archive and disseminate the US high-resolution radiosonde data.
- Expand the data archive to include data from other countries and field campaign data, including dropsonde data. Coordination of high resolution data products with existing radiosonde data products (e.g., IGRA at NOAA/NCDC, campaign data at NCAR).
- Stable institutional commitment to high-resolution radiosonde data stewardship, in coordination with scientific advisory group.
- Improve the data quality (QC, metadata ...) and increase the user friendliness (easy format, visualization ...)
- Facilitate and promote the scientific applications of the high-resolution radiosonde data.

Hamilton, K. and Vincent, R. A. (1995), High-resolution radiosonde data offer new prospects for research, *Eos*, 76 (49), doi:10.1029/95EO00308.