

Increased Access to High-Resolution Radiosonde Data - New Science Prospects for FISAPS

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High vertical-resolution radiosonde data (HVRRD) have been utilized for various atmospheric research topics. These include research into gravity waves, tropopause structure, boundary layer structure, and turbulence. Investigations in each of these areas have been limited by availability of those data to specific regions, mostly US data. Some examples where HVRRD has been used in each of those research topics are described.

The situation with respect to data availability is now changing, mostly due to operational demands for HVRRD. These data used for operations are now being archived at NCEI (National Center for Environmental Information in the US) and IMAA (Italian group providing part of the Copernicus Climate Data Store) and thus are available for research use. The increased availability of those data and their means of access are described. The availability of greater global HVRRD coverage opens prospects for new research. For instance, comparing gravity wave energies in regions with different jet intensities will be valuable to constrain parameterizations for jet emission of gravity waves. HVRRD will also be useful for examining turbulence climatologies for aviation purposes in different regions of the globe. Tropopause and boundary layer studies can also be extended geographically. Increased availability of HVRRD will enable new research on these and likely other topics not yet imagined.