



EOSDIS Earth Observing System Data and Information System

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Equal Area Scalable Earth Grid: A Move Toward Data Mapping Standards [1]

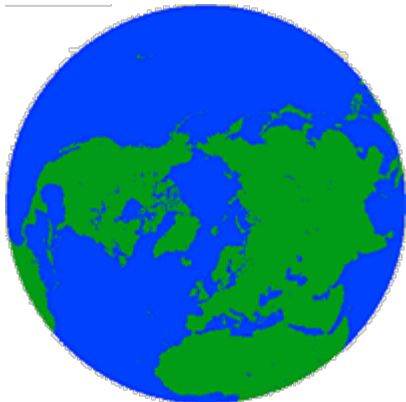
by Annette Varani
Published in 1998

The availability of a standard gridding scheme is a fundamental requirement for systematic time-series studies and direct digital comparison of different satellite data sets, according to Richard Armstrong, principal investigator of the SSM/I Pathfinder project at the National Snow and Ice Data Center (NSIDC) in Boulder, Colorado. Having a standard grid and format is also necessary to validate remote sensing algorithms by comparing output data with surface measurements and other information through time. Sample points in raw satellite data, which are in orbital format, move in time. Therefore, having a fixed grid is required for analyzing change.

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EASE-Grid north azimuthal equal-area map (Image courtesy of the National Snow and Ice Data Center)

The need prompted Armstrong's SSM/I Pathfinder team to develop a prototype mapping and gridding system in collaboration with researchers based at the University of Michigan's Radiation Laboratory. The prototype, originally specific to SSM/I data, is now called the Equal-Area Scalable Earth Grid (EASE-Grid) because of its wide potential for application to any global-scale data set.

The EASE-Grid provides a versatile framework because the technique used to interpolate swath data to the fixed Earth grid is unique to each sensor, allowing for an infinite number of grid definitions, all within a common image-processing format.

The SSM/I team decided in favor of equal-area projections for the EASE-Grids because they minimize distortion over the globe. The team selected a cylindrical projection for global studies, and separate equal-area azimuthal projections for the Northern and Southern Hemispheres to support polar research. Since development, the EASE-Grid system has proven to be so effective that NSIDC now offers several data sets in this format, and the NASA Polar Pathfinder researchers, including the TOVS and AVHRR teams, have adopted the EASE-Grid standard.

"We made use of the work that had gone into developing the EASE-Grid," said Ted Scambos, a principal investigator on the AVHRR Polar Pathfinder project, "because it's an excellent means of organizing and presenting the data. AVHRR data are higher resolution than the original EASE-Grid was scaled for -- SSM/I data were mapped at 12.5 and 25 km resolution. But it's a flexible system that can be tailored to higher resolution data, so that AVHRR grids could be exactly colocated with the SSM/I EASE-Grids. This effectively creates a coregistered data set that makes it easy to compare parameters from several different sensors."

Related Link(s):

- [EASE-Grid Data Overview](#) [3]

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[2] <https://earthdata.nasa.gov/data/data-centers/nsidc-daac>

[3] <http://nsidc.org/data/ease/index.html>

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