Overview of TRMM data products and services

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November 27, 2007 marks the 10th anniversary of the launch of the Tropical Rainfall Measuring Mission (TRMM) satellite. In anticipation of this anniversary, this paper will present an overview of the various TRMM data products currently available including the standard products, near real-time products, special products, and prototype products. It also will present an easy way to obtain these data.

TRMM standard products have been publicly available since a few months after launch in November 1997. TRMM is currently on version 6 of the data product. Version 3 was the "at launch" version. The approval for each of these versions came through the Joint TRMM Science Team. Standard products are divided into 3 categories: single TRMM instrument, Visible Infrared Scanner (VIRS), TRMM Microwave Imager (TMI), and Precipitation Radar (PR); combined TRMM products (PR and TMI); finally TRMM and other satellites (combined, TMI, SSMI, AMSRE, AMSU). The single TRMM instrument products are processed through 4 levels: Level 1A, science data packets processed into orbital files; Level 1B and 1C, geolocated data at the instrument field of view; Level 2, geolocated, geophysical parameters at the instrument field of view; Level 3, time aggregated, gridded geophysical parameters. These products are available with 24 hours of production through an anonymous ftp account on trmmopen.gsfc.nasa.gov.

The TRMM data system started to produce near real-time products at the end of 1999. They are currently available only through a controlled user account. However, approval to get access to this account can be obtained by sending a note to Erich.F.Stocker@nasa.gov providing the reason for access and contact information including a valid email. TRMM is not restricting access but needs the information to determine the usefulness of near-real time data to the general science community including applications agencies. TRMM near real-time products are swath products up to Level 2 of processing. The oldest data in the swath is generally no older than 120

minutes when it becomes available to the community. The real-time products including a VIRS level 1B, a TMI parameter reduced 1B , a TMI level 2 parameter reduced rain product, a PR level 2 surface rain product, and a PR level 2 rain product with 25 vertical levels. Currently, TRMM also produces a gridded 3 hour global merged product from several radiometers including AMSU and from radiometer-calibrated IR data.

The paper also describes several simple-format gridded text products available from the trmmopen.gsfc.nasa.gov anonymous ftp server denoted as 3G68 products. These products were produced to provide rain estimates from the three TRMM instruments in a universal format (ASCII) that requires very little data format knowledge. The paper goes on to describe prototype L1 radiometer products that apply an early inter-calibration approach that provides a starting point to be used for Global Precipitation Measurement mission radiometer products. The paper also provides a brief overview of a precipitation features data product being produced using TRMM products including the Lighting Imaging Sensor (LIS) using an algorithm developed at the University of Utah and distributed by that organization.

The paper concludes with some possible changes to products that are planned for the next reprocessing cycle and special services such as geographical subsetting available to the science community.