Panel 2. GRIDDING AND AVERAGING

"Discussion should focus on the data structures for Level 2 and gridding and compositing of Level 3 products, and the use of models."

Panelists: Alan Strahler, Moderator; Bob Evans, Alfredo Huete, Robert Wolfe, Chris Justice, Paul Menzel, Joann Harnden, Peter Muller, Ed Masuoka, Dave Diner (or designate).

Goals and Objectives:

* Enhance understanding of ISSCP Level 3 grid and related issues
* Explore usefulness of Level 2G (and 1G?) for standard products
* Explore compositing issues: timing, selection, pixel size

Policy Issues/Follow-ons

* Which products are to be archived on which grid?
* To nest or not to nest -- do we have a position?
* Are there community research issues? If so, how do we resolve them?

Discussion Outline:

I. Level 3 Grid
   * Presentation of nested ISSCP grids as adopted by SWAMP (R. Wolfe)
   * Goddard DAAC views on ISSCP grid (S. Ungar)
      -- Storage requirements
      -- Others
   * Problems of grid boundaries in nested scheme for finding geographically-nearest neighbors (S. Ungar)
   * Utility Functions needed for Toolkit
      -- Lat-long to grid cell
      -- Grid cell to lat-long
      -- Going from one nesting level (resolution) to another
      -- Finding geographic neighbors across grid discontinuities in nested case
      -- Others?
   * Handling the Level 3 Grid in HDF
      -- How will sparse gridded data be handled? Does it matter?
      -- What about varying numbers of observations per grid cell?
   * Viewing Level 3 Products
      -- Need cartographic routines to go from ISSCP grid to common map projections: Goode's homolosine; UTM; polar stereographic; Lambert conic conformal (resampling method(s)?)
   * ISSCP Grid and Modeler's needs
      -- Grid to modeler's formats -- i.e., equal-angle grid.

         (resampling method(s)?)

II. Level 2G Products -- E.g., surface reflectance
   * Description of format
      -- Scan cube geometry is forward-projected to ISSCP grid without resampling
    * Advantages
      -- Easy to combine with Level 3 data
      -- No resampling of data

* Disadvantages
  -- Some grid cells empty; some with multiple values (S. Ungar)
  -- Scan cube geometry can be reconstructed exactly, but only with difficulty
* Requires simple filter to view
  -- E.g., average multiple values; for hole, average surrounding cells
* Do geolocation tags need to be carried as well? Or do we just prepare Level 1G versions of MOD 03?
* Possibly provide Level 1G radiances to users instead of bowties?
* Alternatives to 2G (S. Ungar?)

III. Compositing Issues
* Timing Issues
  -- 1-day; 7-day; 10-day; 16-day; 30-day; 90-day; 365-day: OK?
* Selection procedure
  -- Varies with product (max value, average, modal value, best quality, etc.) Anything to discuss here?
* Pixel size -- e.g., compositing 2 x 5 km edge pixels at 1-km
  -- Resampling (gridding) or binning (nearest neighbor)