PROPOSED GRID CHARACTERISTICS

- 1^{o}x1^{o} equal angle resolution, with nesting down to 0.5^{o} and 0.25^{o} for land products

- Temporal binning at 10 day intervals, 3 intervals per month:

  1 - 10
  11 - 20
  21 - end of month

- Diurnal binning on 002, 032, 062, etc., for radiation and meteorological products.

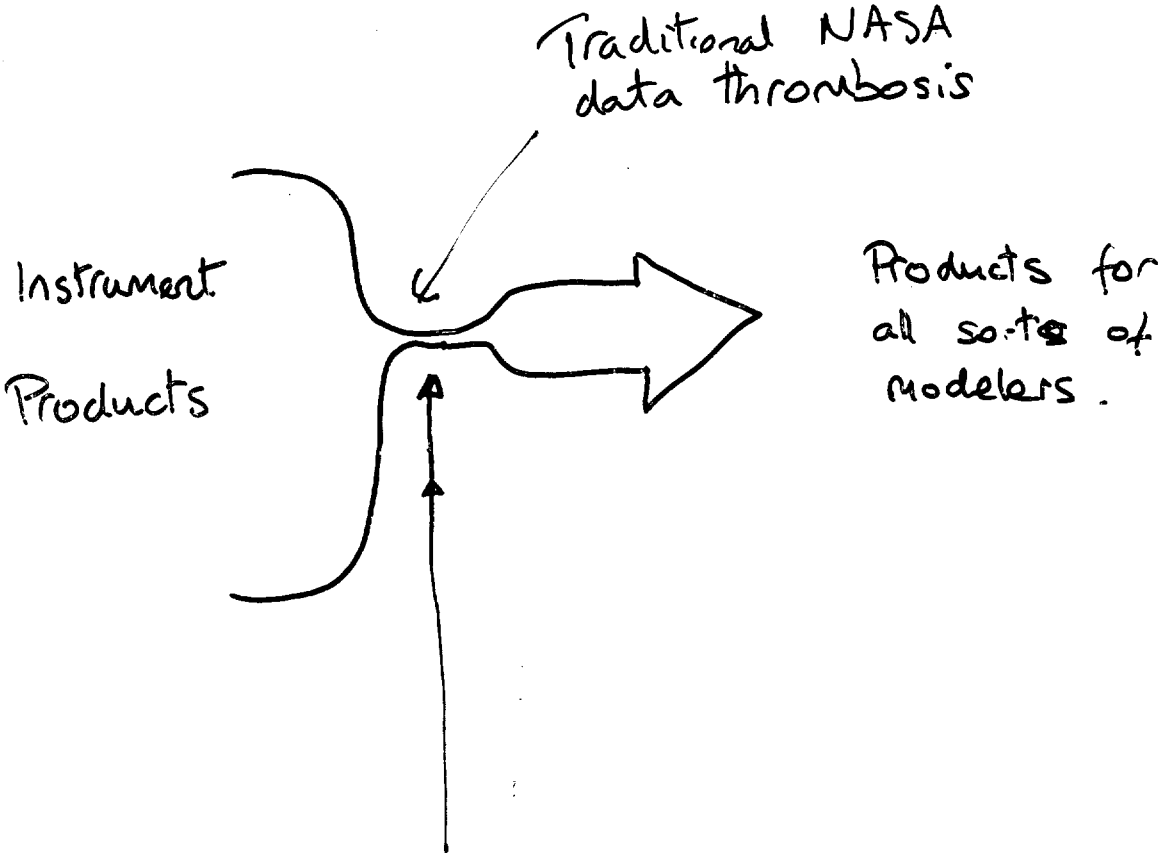
- Instrument teams to generate these products from standard products themselves - they know how best to do it with their data

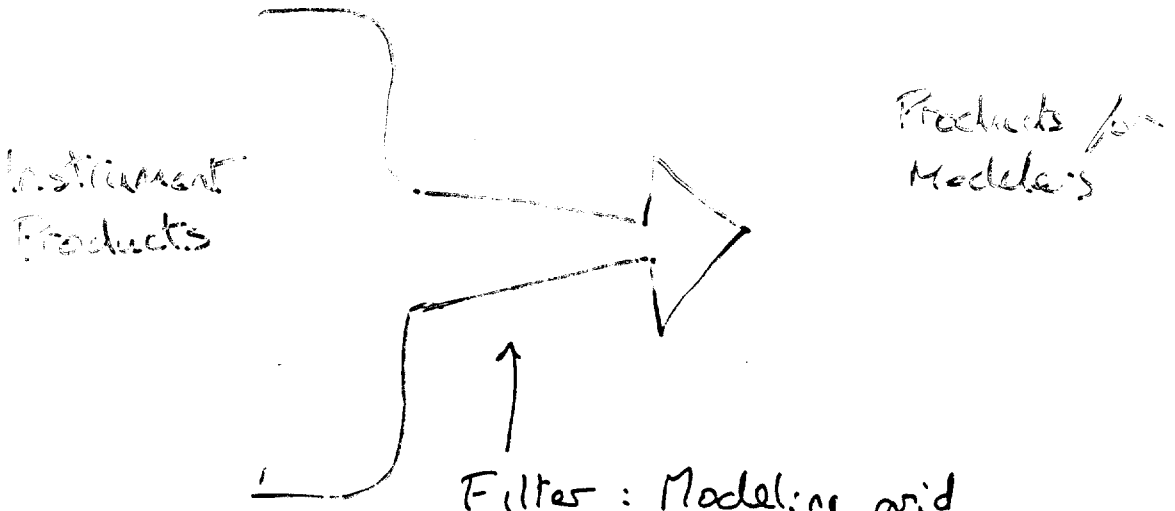
- This scheme is more or less the same as ISLSCP $1^{\circ} \times 1^{\circ}$ grid convention (800 users so far, another 500 soon)

GRIDDING

PROPOSAL I:	Common nested grid for all Eos-AM L3 products
Rejected:	Too many specialized instrument-specific, user-specific needs (e.g. polar data sets)

PROPOSAL II:	Generate a set of high level (L3 and above) products for modelers, to a common nested grid
Accepted (so far):	Objective is to provide modelers with easy-to-use, homogeneous data sets for large-scale modelers • NWP and Climate Models • Carbon cycle models • Biogeochemists • Oceanographers?





Filter: Modeling grid
- Common grids (easy-to-handle)
- Coarser resolution (manageable)
- Generated by teams
(technically kosher, but comprehensible)

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

IMD
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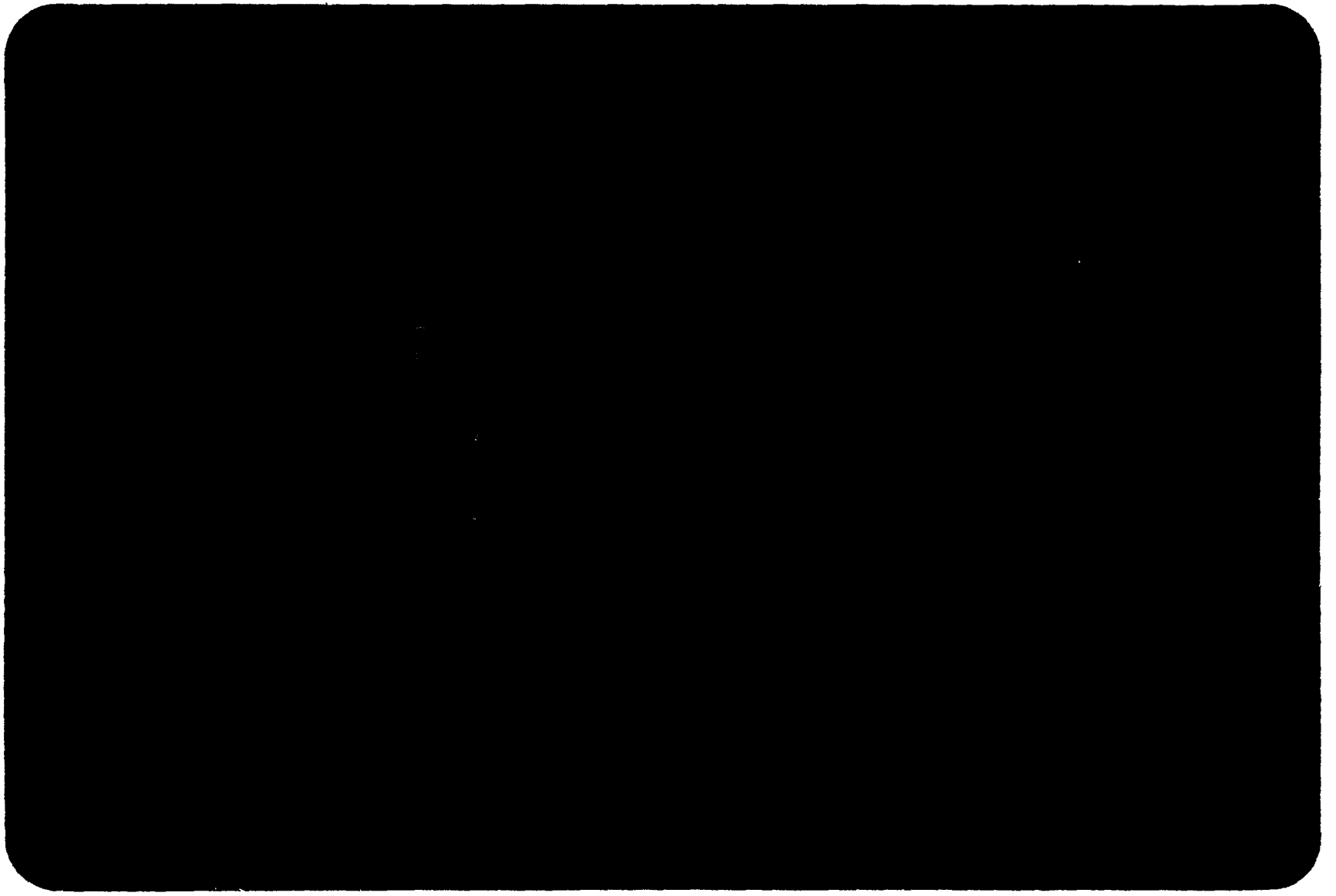
No. _____

COMPUTER GRAPHIC FORMAT



NOTES _____

_____

Table 2: Data Sets on the CD

Temporal Resolutions are Given in the Right-Hand Column

Notes:

- "Monthly 3-hourly" refers to values that are monthly means of 3-hourly data. Thus, all the 0000Z values for a month are averaged into a single value, also the 0300Z values, etc.
- The snow-free albedo data set in section A is based on NDVI fields and a model calculation, the albedo field in section D is based on ERBE data, and the fields in section E originate from a survey of in-situ work.
- The documentation for the vegetation class data in section A includes vegetation morphological and physiological parameters associated with each vegetation type in the SiB2 model of Sellers et al. (In prep.).

A. VEGETATION: LAND COVER AND BIOPHYSICS—(NASA/GSFC, CSU, U. Maryland)

NDVI, FASIR-NDVI	Monthly	Background (soil/litter) reflectance	
FPAR, LAI, Greenness	Monthly	(Vis, NIR)	Fixed
Surface roughness, snow-free albedo	Monthly	Vegetation class	Fixed

B. HYDROLOGY AND SOILS

(GPCP, GRDC, U. Arizona, Trent U., NCAR, FAO, NASA GSFC, NASA GISS)

Precipitation (GPCP)	Monthly	Lake, river, marsh cover percentage	Fixed
River runoff (GRDC; 14 basins)	Monthly	Soil texture, depth, slope	Fixed

—more—

Table 2: Data Sets on the CD, continued

Temporal Resolutions are Given in the Right-Hand Column

C. SNOW, ICE AND OCEANS
(NOAA/NESDIS, Rutgers U., USAF, NOAA/NMC, US Navy, NCAR)

Snow cover; depth ..... Monthly
Sea ice, SST ..... Monthly
Land-ocean boundary ..... Fixed

D. RADIATION AND CLOUDS
(U. of Maryland, NASA/LaRC, ISCCP, NASA/GISS)

Surface and TOA incoming and outgoing shortwave ..... Monthly 3-hourly
Surface incoming PAR fluxes ..... Monthly
Surface incoming shortwave and longwave radiation fluxes ..... Monthly
Surface net shortwave, net longwave, net radiation fluxes ..... Monthly
Cloud amount, cloud top pressure ..... Monthly
Optical thickness, water path ..... Monthly
Clear-sky albedo (ERBE) ..... Monthly

E. NEAR-SURFACE METEOROLOGY
(ECMWF, NASA/GSFC, NOAA/NMC, NASA/LaRC, GPCP)

(i) Prescribed/diagnostic fields

Soil moisture ..... Monthly
Deep soil temperature and soil wetness ..... Monthly
Snow depth ..... Monthly
Albedo, surface roughness ..... Fixed

(ii) Monthly 6-hourly forcing fields

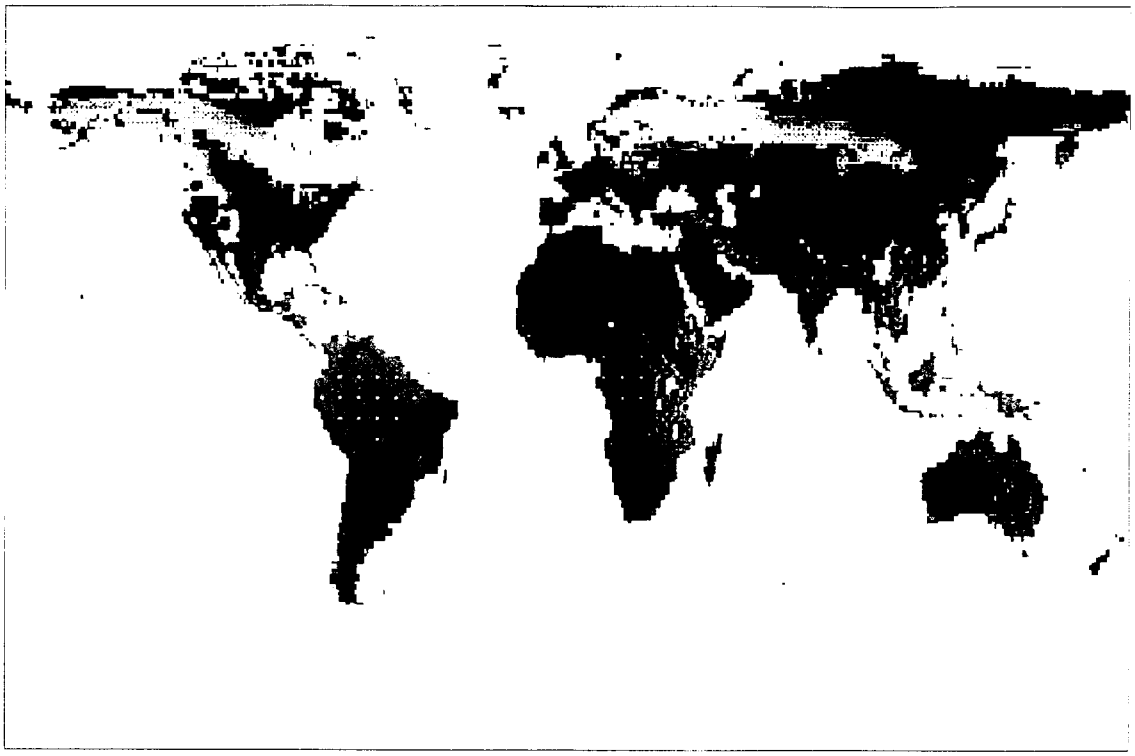
Surface pressure, air temperature, dew point ..... Monthly 6-hourly
Surface temperature ..... Monthly 6-hourly
Mean sea level pressure ..... Monthly 6-hourly
u, v wind speed and stress ..... Monthly 6-hourly
Surface sensible and latent heat fluxes ..... Monthly 6-hourly
Net surface and TOA shortwave, longwave fluxes ..... Monthly 6-hourly

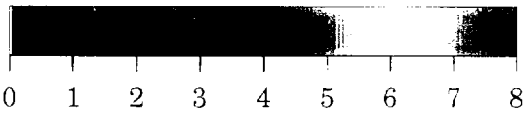
(iii) Diurnally-resolved (6-hourly) forcing fields

Surface pressure, air temperature, dew point, wind speed 6-hourly
Hybrid longwave and shortwave incoming radiation fluxes 6-hourly
Hybrid total precipitation and convective precipitation 6-hourly

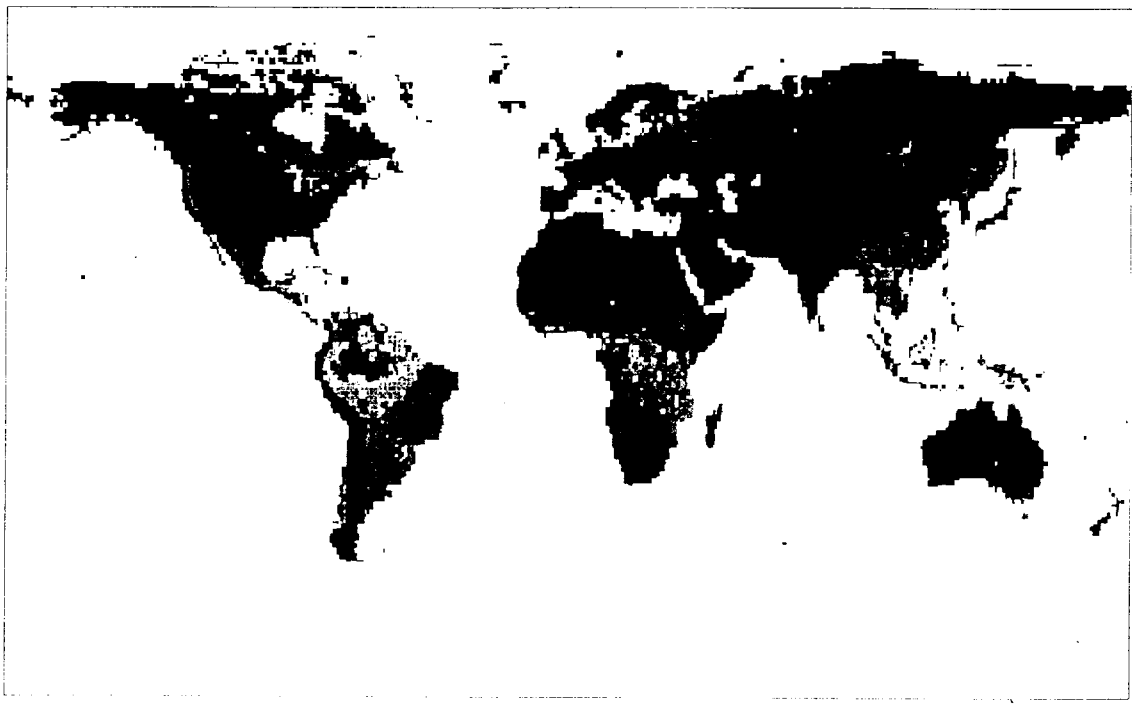
Leaf Area Index
January

SiB1



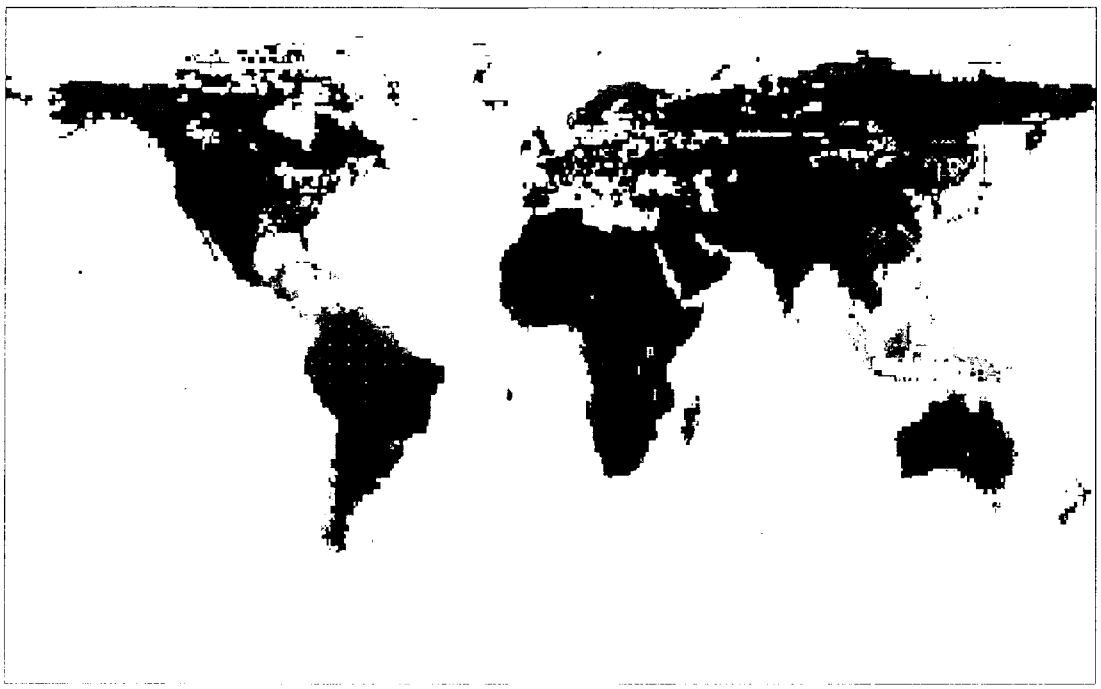


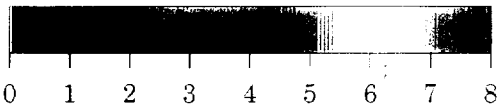
SiB2



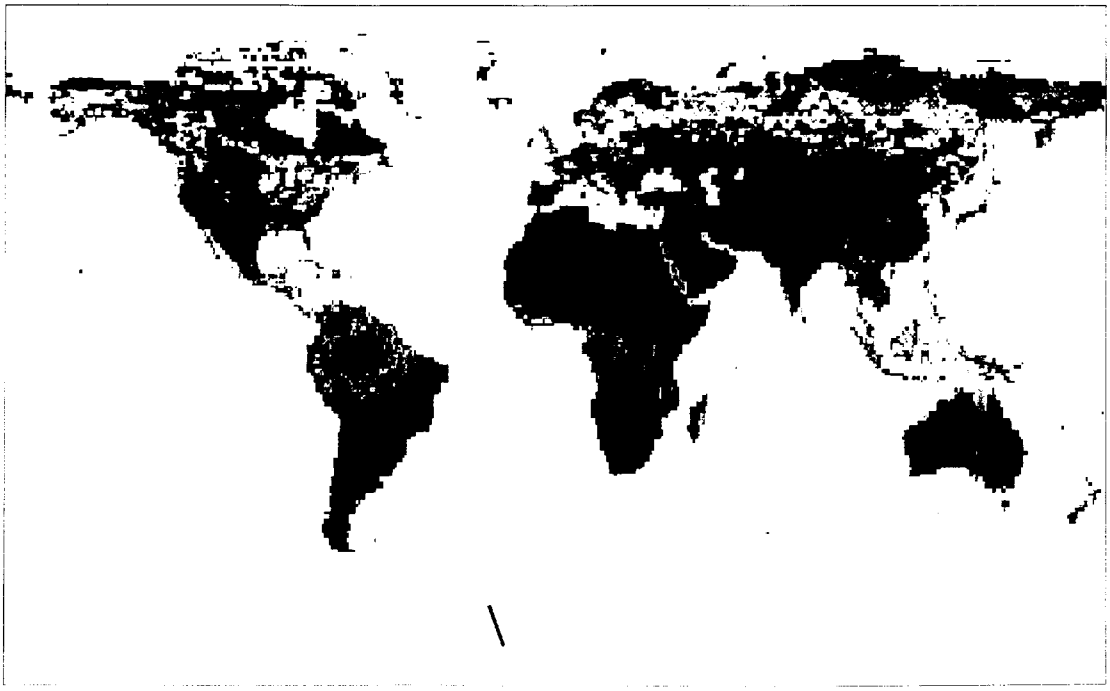
Leaf Area Index
July

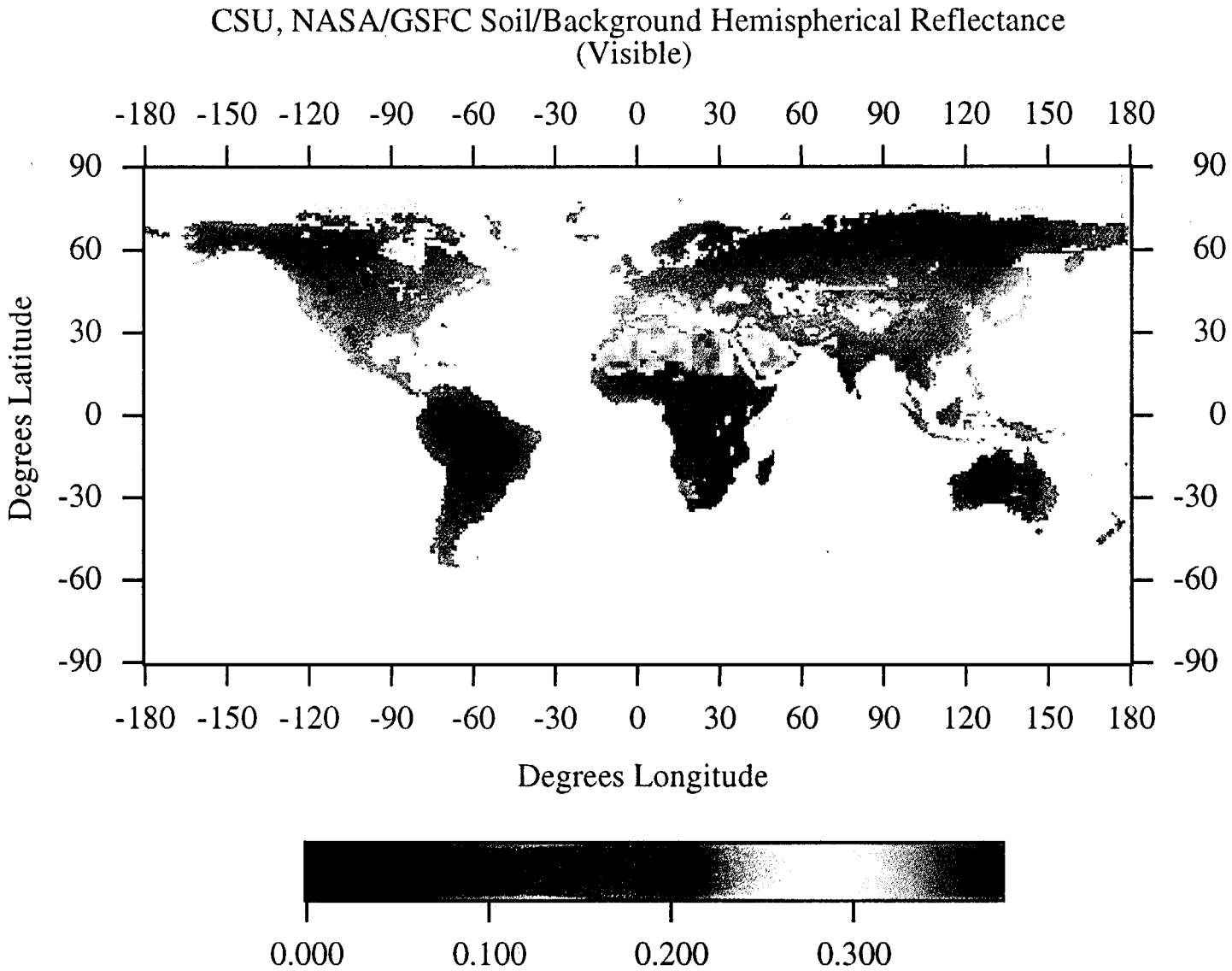
SiB1

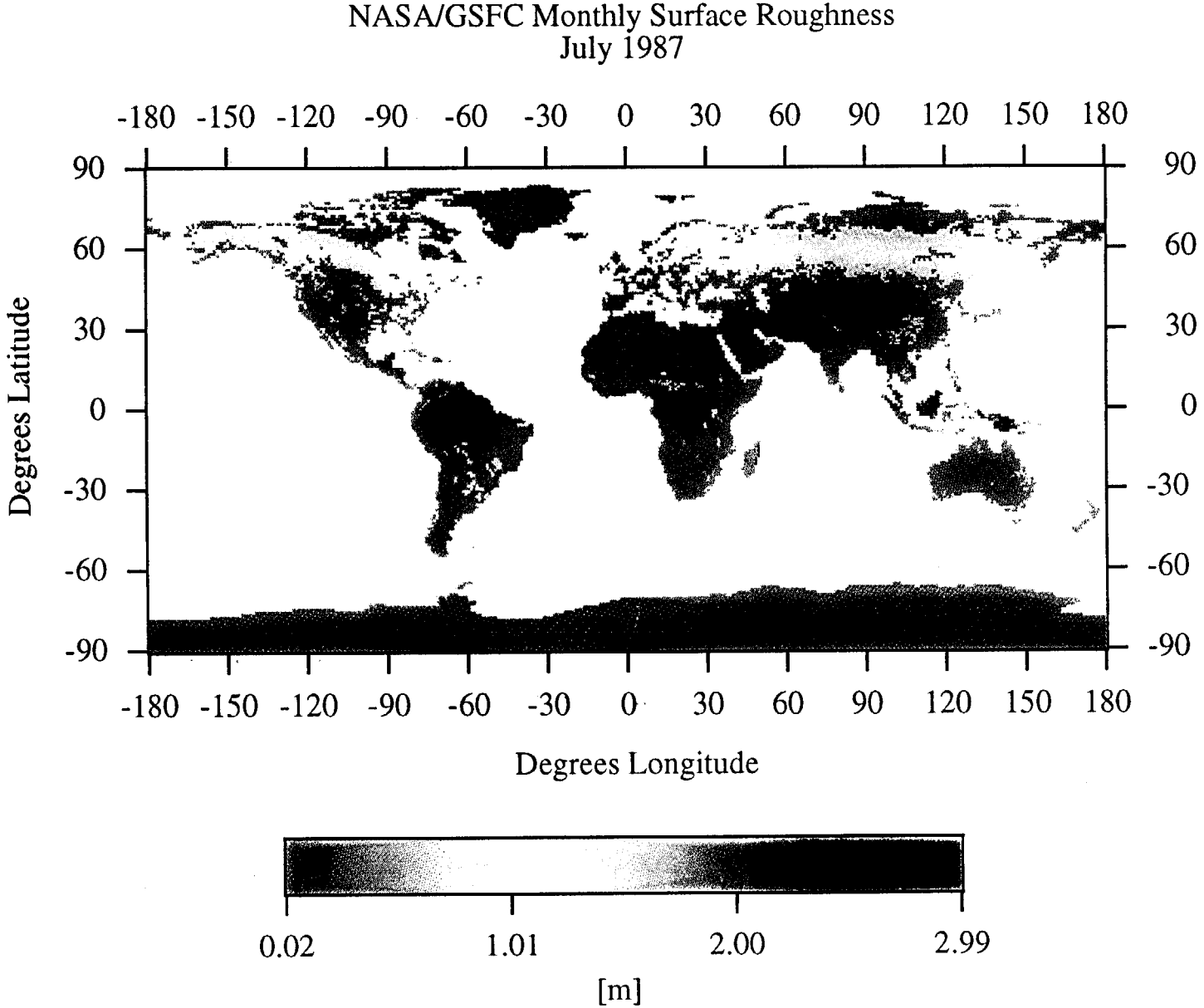




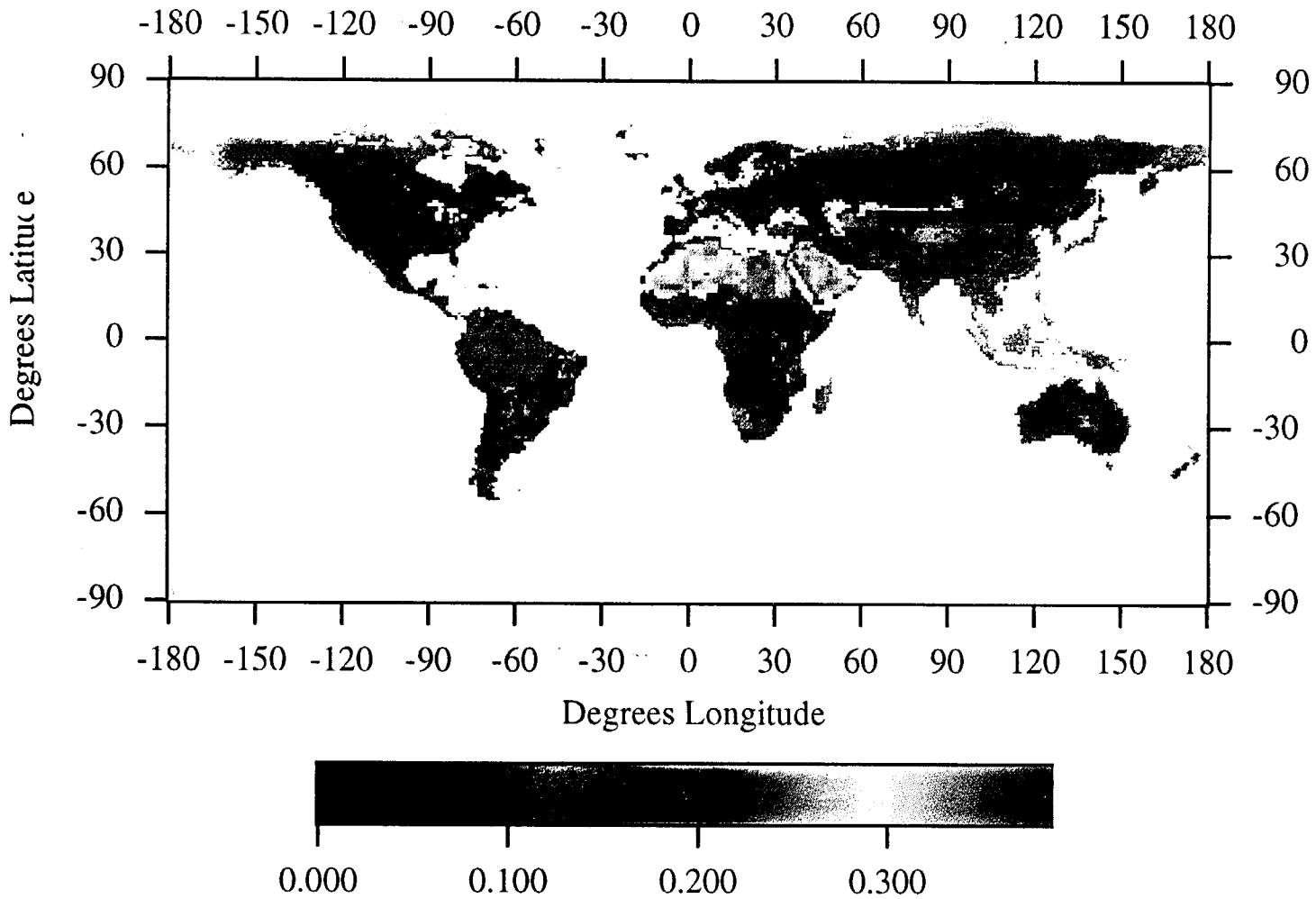
SiB2

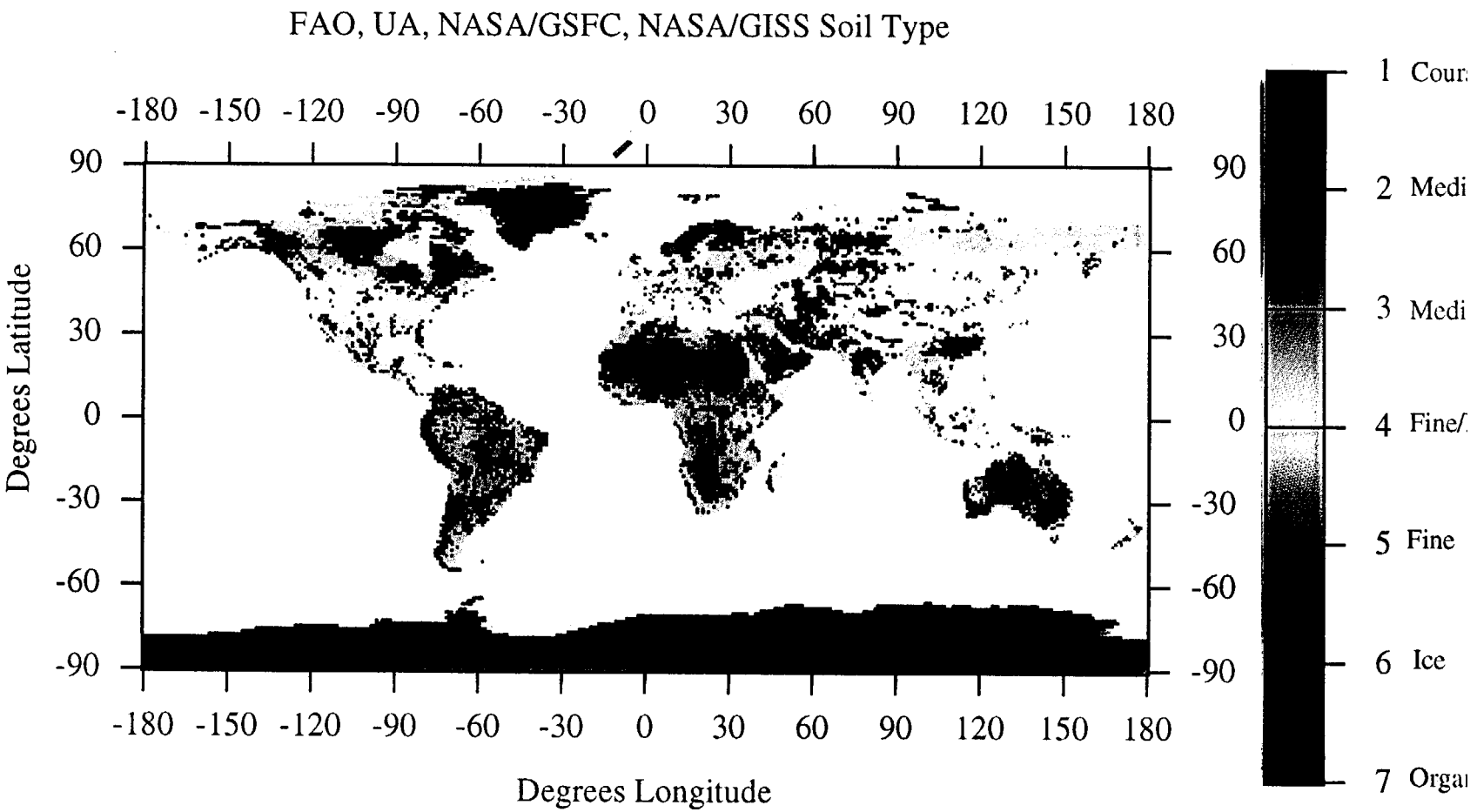


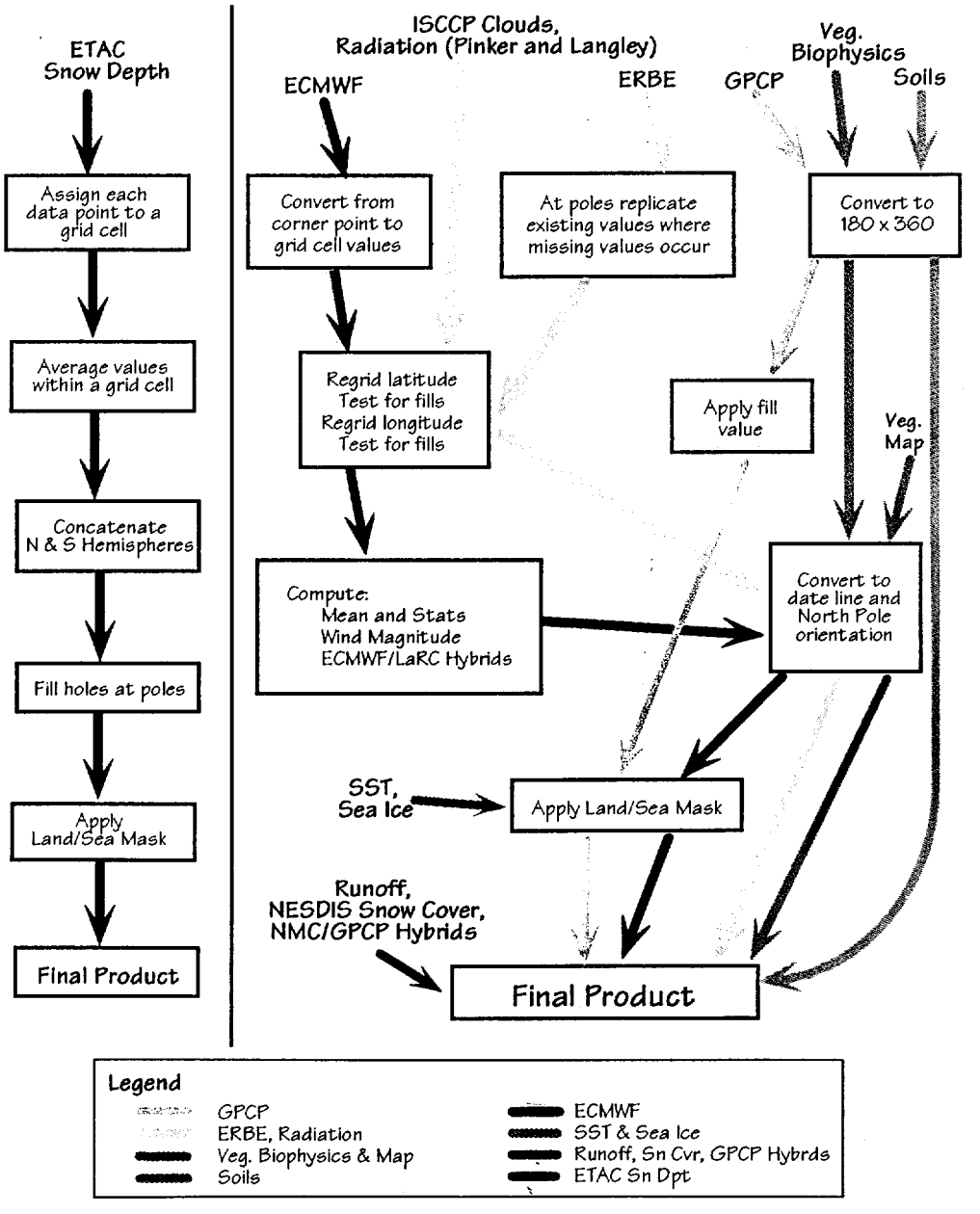

CSU, NASA/GSFC Soil/Background Hemispherical Reflectance
(Visible)
-180 -150 -120 -90 -60 -30 0 30 60 90 120 150 180
90
60
30
0
-30
-60
-90
Degrees Latitude
Degrees Longitude
0.000
0.100
0.200
0.300


NASA/GSFC Monthly Surface Roughness
July 1987
-180 -150 -120 -90 -60 -30 0 30 60 90 120 150 180
90
60
30
0
-30
-60
-90
Degrees Latitude
Degrees Longitude
0.02
1.01
2.00
2.99
[m]

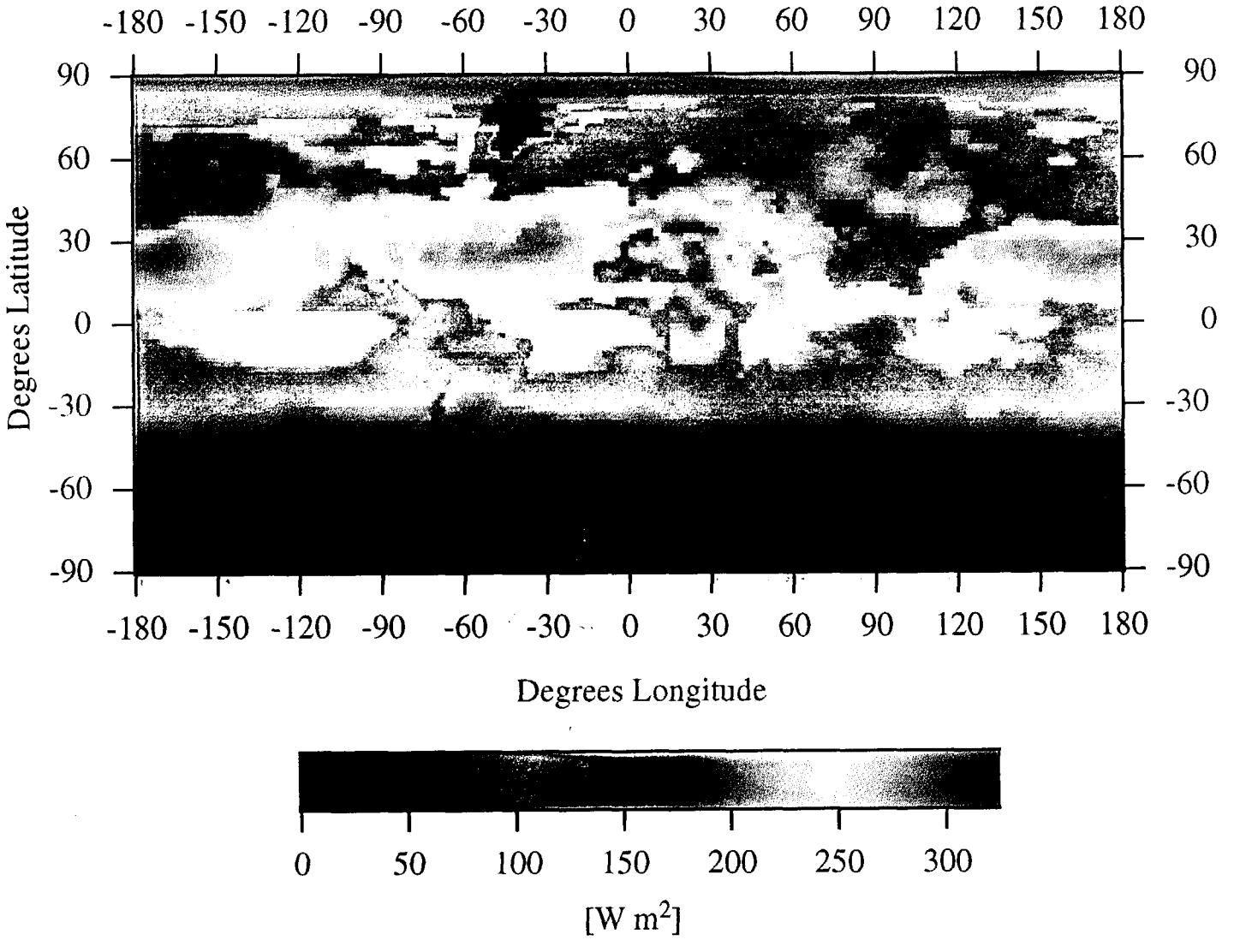
CSU, NASA/GSFC Monthly Snow Free Albedo
July 1987




FAO, UA, NASA/GSFC, NASA/GISS Soil Type
-180 -150 -120 -90 -60 -30 0 30 60 90 120 150 180
90
60
30
0
-30
-60
-90
Degrees Latitude
Degrees Longitude
1 Coar
2 Medi
3 Medi
4 Fine/
5 Fine
6 Ice
7 Orga


ETAC
Snow Depth
Assign each data point to a grid cell
Average values within a grid cell
Concatenate N & S Hemispheres
Fill holes at poles
Apply Land/Sea Mask
Final Product
ISCCP Clouds, Radiation (Pinker and Langley)
ECMWF
ERBE
GPCP
Veg. Biophysics
Soils
Convert from corner point to grid cell values
At poles replicate existing values where missing values occur
Convert to 180 x 360
Regrid latitude Test for fills Regrid longitude Test for fills
Apply fill value
Veg. Map
Compute: Mean and Stats Wind Magnitude ECMWF/LaRC Hybrids
Convert to date line and North Pole orientation
SST, Sea Ice
Apply Land/Sea Mask
Runoff, NESDIS Snow Cover, NMC/GPCP Hybrids
Final Product
Legend
GPCP
ERBE, Radiation
Veg. Biophysics & Map
Soils
ECMWF
SST & Sea Ice
Runoff, Sn Cvr, GPCP Hybrds
ETAC Sn Dpt

NASA Langley Monthly Net Shortwave Radiation
July 1987



National Aeronautics and
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Reply to Attn of:

FAX # (301) 286-0239

DATE: October 26, 1995

TO: Ken Mitchell/301-763-8161
Tony Hollingsworth/UK/441 734 869 450
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Carlos Nobre/Brazil/55 123 218 743

FROM: Piers Sellers

NUMBER OF PAGES: 2

CAIM

MESSAGE: EOS-AM Model Grid Products

Dear Friends,

We intend to generate coarse-spatial resolution data products from EOS-AM for use by modelers (NWP, Climate, Carbon Cycle, Oceanography). Currently the proposal is for:

- Equal-angle grid with 1° x 1° resolution with nested cells at 0.5°, 0.25° for some land and ocean products.

- Cells start at 90°N, 180°W and are aligned between integer lat/lon lines i.e. the first 1° x 1° cell will cover 89° - 90°N, 180°W to 179°W.

- Time resolution is roughly 10 days; for each month:
  1-10
  11-20
  21-end of month

  This is so that these periods can be added up easily to make monthly products.

This scheme looks a lot like the ISLSCP data sets that you have already seen. It is acceptable to representatives of the EOS-AM instruments. Is it OK by you lot?

NASA Langley, NASA/GSFC, ECMWF 6 Hourly Longwave Radiation
1200 GMT, July 1, 1987