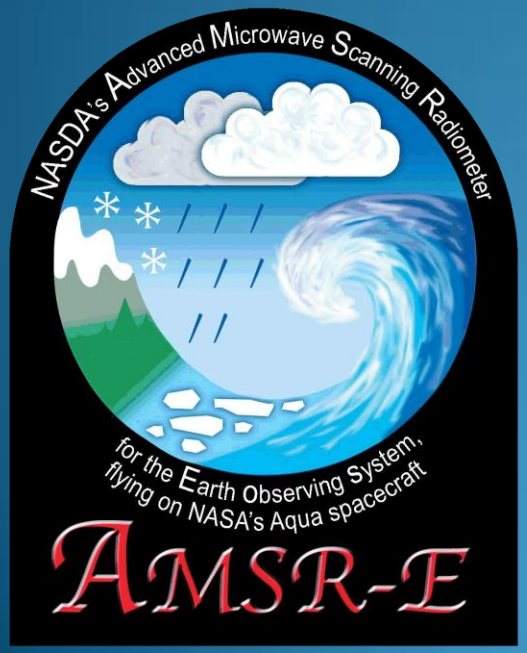
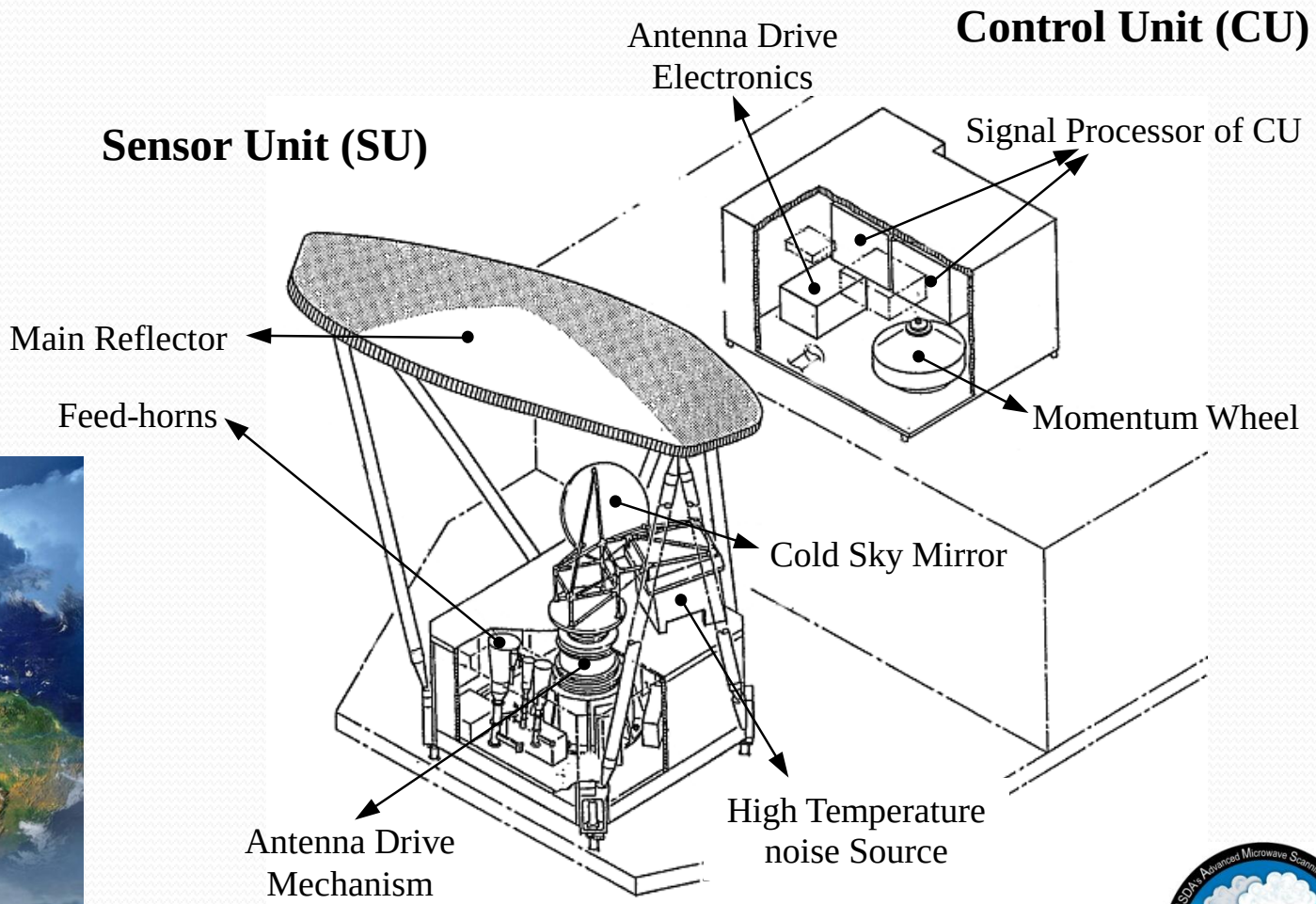
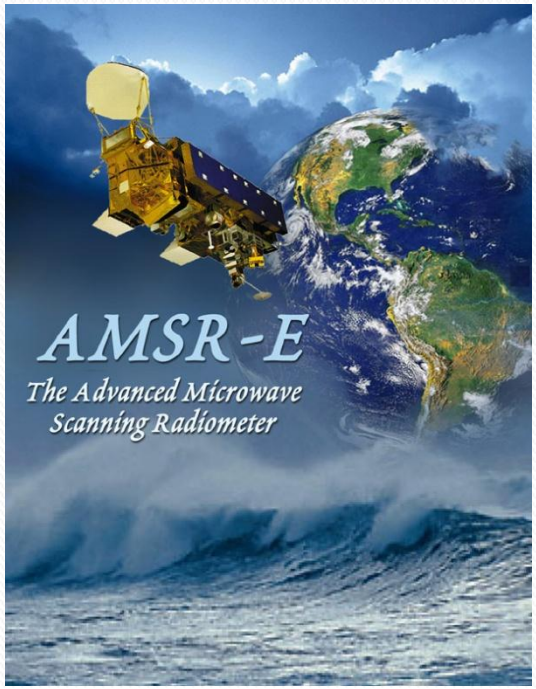
Advanced Microwave Scanning Radiometer for the Earth Observing System (AMSR-E)



Roy W. Spencer – Science Team Leader
Elena S. Lobl
William D. Braswell
Dawn Conway – Software Team Lead
Don Moss

AMSR-E – the Instrument





http://wwwghcc.msfc.nasa.gov/AMSR

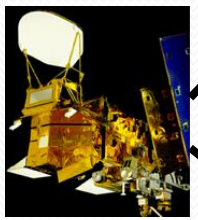
Instrument Characteristics

Channel center frequency (GHz)	6.925, 10.65, 18.7, 23.8, 36.5, 89.0 (2)
Polarization	V and H
Antenna effective aperture size (m)	1.6
Orbit altitude (km)	705
Swath width (km)	1450
Incidence angle (deg)	55 (54.5 for one of the 89 GHz channels)
Scan rate (rpm)	40
Instantaneous field-of-view (km x km)	43x75, 27x48, 16x27, 18x31, 8x14, 4x6

Instrument Performance Characteristics

Center frequency (GHz)	6.925	10.65	18.7	23.8	36.5	89.0
Bandwidth (MHz)	350	100	200	400	1000	3000
Sensitivity (K)	0.3	0.6	0.6	0.6	0.6	1.1
Mean spatial resolution (km)	56	38	21	24	12	5.4
Sampling rate (km x km)	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10	5 x 5
Integration time (sec)	2.6	2.6	2.6	2.6	2.6	1.3
Main beam efficiency (%)	95.3	95.0	96.3	96.4	95.3	96.0
Beamwidth (deg)	2.2	1.4	0.8	0.9	0.4	0.18

AMSR-E Data Flow



NASA EDOS

Ground Stations

Level-0

JAXA-EOC
L1A Product Generation

Level-1A

Level-0

PO.DAAC

Level-1A

NSIDC DAAC
Data Archive and Distribution

Level-1A

Level-2 & Level-3

LANCE NRT Product Generation & Distribution

NRT Level-2 & Level-3

SIPS-RSS
L2A Product Generation

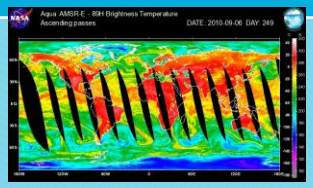
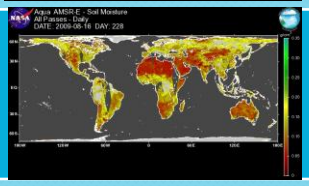
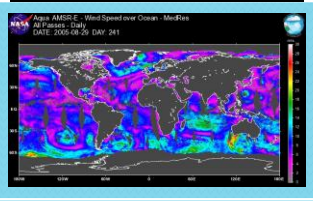
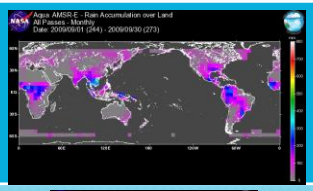
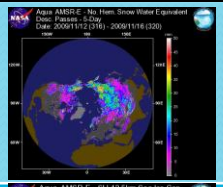
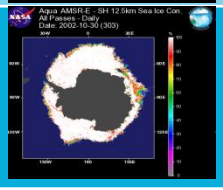
SIPS-GHCC
L2B & L3 Product Generation

(Climate research quality)

DAAC = Distributed Active Archive Center
EDOS = EOS Data & Operation System
EOC = Earth Observation Center
NSIDC = National Snow &Ice Data Center
PO.DAAC = Physical Oceanography DAAC
SIPS = Science Investigator-led Processing Systems
RSS = Remote Sensing Systems
GHCC = Global Hydrology & Climate Center

NASDA's Advanced Microwave Scanning Radiometer for the Earth Observing System, flying on NASA's Aqua spacecraft
AMSR-E

AMSR-E Data Products

Product	Spatial	Temporal	Sample Image
Raw Observation Counts (Level-1A)		Half-orbit files*	
Brightness Temperatures (Level-2A)	5.4-56 km	Half-orbit files*	
Surface Soil Moisture (Level-2B & Level-3)	25 km	Half-orbit files* Daily swaths	
Ocean Products (Level-2B & Level-3)	12-56 km	Half-orbit files* Daily swaths, Weekly grids, Monthly grids	
Precipitation (Level-2B & Level-3)	5.4 km, 5°	Half-orbit files* Monthly grids	
Snow Water Equivalent (Level-3)	25 km	Daily, 5-Day, Monthly grids	
Sea Ice Concentration (Level-3)	6.25 km, 12.5 km, 25 km	Daily grids	

*** Pole to pole**

AMSR-E Data Access & Services

Standard products @ NSIDC DAAC

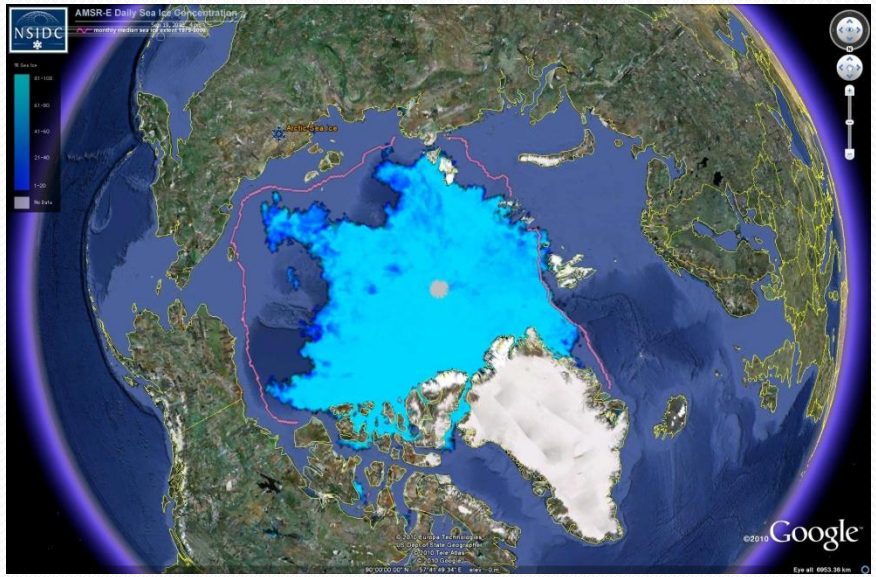
- http://nsidc.org/data/amsre/order_data.html

Product documentation & support @ NSIDC DAAC

- http://nsidc.org/data/amsre/data_summaries/index.html
- nsidc@nsidc.org

LANCE NRT products @ AMSR-E SIPS

- http://lance.nsstc.nasa.gov



2010 Sea Ice Minimum: AMSR-E 12.5 km Sea Ice Concentration for 19 September 2010 displayed in Google Earth