

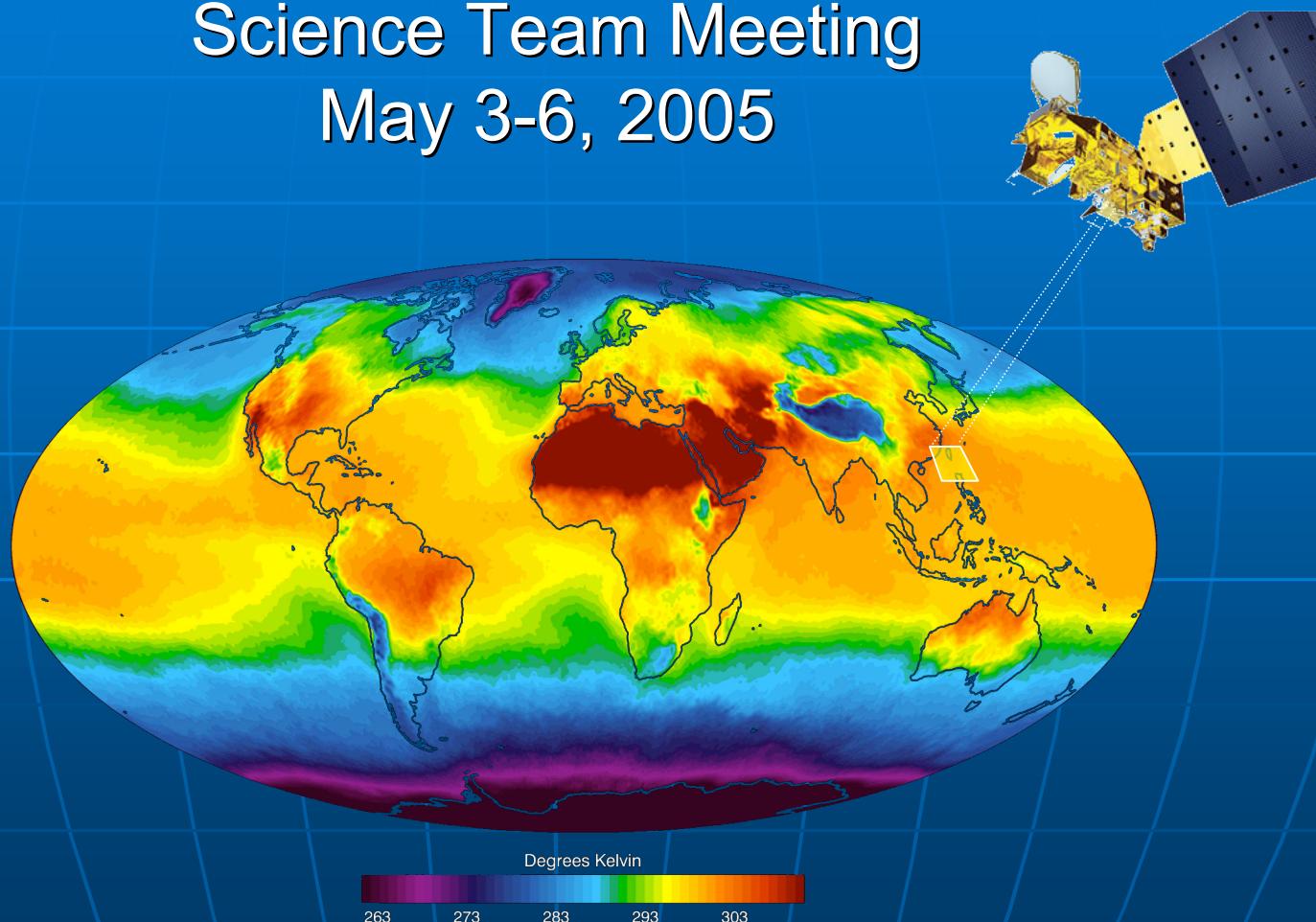


National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Atmospheric Infrared Sounder (AIRS) Science Team Meeting

May 3-6, 2005





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Project Report

May 3, 2005

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AIRS/AMSU/HSB Project Overview

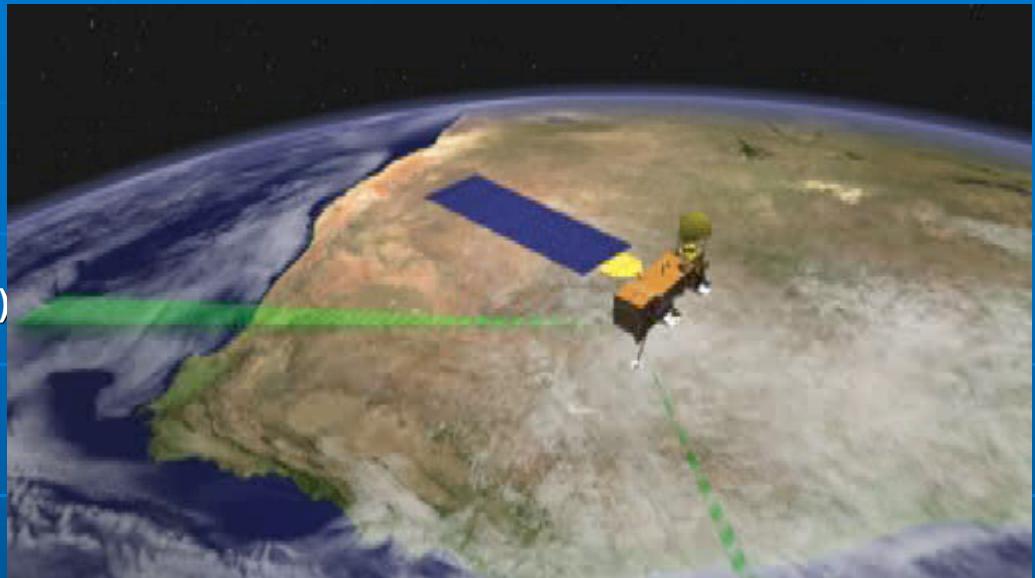
Spacecraft: EOS Aqua

Instruments: AIRS, AMSU, HSB,
(MODIS, CERES, AMSR-E)

Launch Date: May 4, 2002

Mission Life: 5 years (Nominal)

Team Leader: Mous Chahine



AIRS Project Objectives

- 1. Weather Forecasting:** AIRS Already Achieved 6 hours in 6 days improvement in NH with NCEP Operational Model (JCSDA)
- 2. Climate Studies:** Atmospheric Hydrology Cycle
- 3. Tropospheric Composition:** O₃, CO, CO₂, CH₄, ...



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AIRS Science Team

Continuing Members

Chahine, M. (TL)	JPL
Aumann, H.	JPL
Gautier, C.	UCSB
Goldberg, M	NOAA/NESDIS
Kalnay, E.	UMD
LeMarshall, J.	JCSDA
McMillin, L.	NOAA/NESDIS
Revercomb, H	U of Wisconsin
Rosenkrantz, P.	MIT
Staelin, D.	MIT
Strow, L.	UMBC
Susskind, J.	GSFC

International Partners

Chedin, A. (Continuing)	CNRS
Rizzi, R. (Continuing)	U of Bologna
Calheiros, R. (Continuing)	Brazil/HSB
McNally, T.	ECMWF
Saunders, R.	UKMO

New Members

Brewster, K.	U of Oklahoma
Barker, D.	NCAR
Icano, M.	AER
McMillan, W.	UMBC
Atlas, R.	GSFC
Lord, S.	NOAA/NCEP
Barnet, C.	NOAA/NESDIS
Knuteson, R.	U of Wisconsin
Miloshevich, L.	NCAR
Tobin, D.	U of Wisconsin
Mlynczak, M.	LARC
Alexander, J	CoRA
Carlson, B.	GISS
Fu, X.	U of Hawaii
Moncet, J.	AER
Watson, M.	MTU



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AIRS Project Recent Accomplishments

- 3 Year Anniversary of Launch: May 4, 2005
- Instruments Healthy, Stable and Well Calibrated
- Significant Forecast Impact!
- Version 4.0 Released to Public.
- Research Products progressing well
- >5 Publications in First Quarter 2005 Alone
- First AIRS Newsletter
- Biggest AIRS Science Team Meeting to Date
 - >45 presenters
 - 65 presentations



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AIRS Publications First Quarter 2005

Impact of Atmospheric Infrared Sounder Observations on Weather Forecasts

J. LeMarshall, J. Jung, J. Derber, R. Treadon, S. Lord, M. Goldberg, W. Wolf, H. Liu, J. Joiner, J. Woollen, R. Todling, R. Gelaro

EOS, Transactions, American Geophysical Union, Vol. 86 No. 11, March 15, 2005

The Precision and Accuracy of AIRS Level 1B Radiances for Climate Studies

T. Hearty, S. Gaiser, T. Pagano, H. Aumann.

Proceedings of SPIE 5655-54, doi:10.1117/12.578991, 2005

Nighttime cirrus detection using Atmospheric Infrared Sounder window channels and total column water vapor,

B.H. Kahn, K.N. Liou, S.-Y. Lee, E.F. Fishbein, S. DeSouza-Machado, A. Eldering, E.J. Fetzer, S.E. Hanson. L L. Strow

Journal Of Geophysical Research, 110, 10.1029/2004JD005430, 2005

Quantifying tropospheric volcanic emissions with AIRS: The 2002 eruption of Mt. Etna (Italy)

S. A. Carn, L. L. Strow, S. de Souza-Machado, Y. Edmonds, and S. Hannon

Geophysical Research Letters, Vol. 32, L02301, doi:10.1029/2004GL021034, 2005

AIRS Hyperspectral measurements for Climate Research: Carbon Dioxide and Nitrous Oxide Effects

H. Aumann, D. Gregorich, S. Gaiser

Geophysical Research Letters, 32 (5): Art. No. L05806, March 3, 2005

Hurricane Forecasting with the High-Resolution NASA Finite Volume General Circulation Model

R. Atlas, O. Reale, B. Shen, S. Lin, J. Chern, W. Putman, T. Lee, K. Yeh, M. Bosilovich, J. Radakovich

Geophysical Research Letters, Vol. 32, L03807, doi:10.1029/2004GL021513, 2005



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Standard Product Activation / Validation Timeline

Version	3.0	4.0	5.0	6.0
Activation Date	9/03	4/05	6/06	10/07
Radiance Products (L1)	Ocean	Land	Polar	Global
AIRS Radiance	Prov	Val2	Val3	Val4
VIS/NIR Radiance	Prov	Val2	Val3	Val4
AMSU Radiance	Beta	Prov	Val2	Val3
HSB Radiance	Beta	N/A	N/A	N/A
Standard Products (L2)				
Cloud-Cleared IR Radiance	Beta	Val2	Val3	Val4
Surface Temperature	Beta	Val1	Val2	Val4
Temperature Profile	Prov	Val2	Val3	Val4
Humidity Products	Beta	Val1	Val2	Val3
Cloud Cover Products	N/A	Val1	Val2	Val3

Beta = Not suitable for scientific investigations.

Prov = Provisionally validated. Useable for scientific investigations with caution. Validated for non-polar, night, ocean only.

Val1 = non-polar, day/night, ocean.
Val2 = Val1 + land.
Val3 = Val2 + polar
Val4 = Global All Cases