

A history of ASPB: NOAA and UW mutually advancing atmospheric remote sensing

Cooperative Institute for Meteorological Satellite Studies (CIMSS) Prof. Verner E. Suomi Prof. William L. Smith, Sr Prof. Donald R. Johnson Prof. Steven A. Ackerman

(Suomi's dream - coupling government and academic research)

David E. Small new lab admin - VAS specs radiative transfer - retrieval algorithm (VAS) - IR sounding champion - Australian & Chinese collaborations - hyperspectral sounding (HIS, AERI)

Dr. William L. ("Bill") Smith, Sr [UW-CIMSS Director; NASA-LaRC; Hampton U.; UW-AOS Emer Prof; UW-SSEC]

Dr. Christopher M. ("Kit") Hayden radiative transfer - retrieval algorithm (VAS, GOES-8) - meteorological objective analysis - keyboard adjuster [retired]

Hugh B. ("Ben") Howell observational data handling and processing - hyperspectral data sets (HIS, AERI)

Frederick W. Nagle HIRS data processing - satellite navigation - computational math efficiency - Kalman filtering

Harold M. ("Hal") Woolf building fast radiative transfer models/ transmittances (for HIRS, VAS, HIS, GOES-8, GIFTS, AIRS, GOES-R...) - standard climo data sets for radiative models

The National Oceanic and Atmospheric Administration (NOAA)/National Environmental Satellite, Data, and Information Service (NESDIS) has maintained its Advanced Satellite Products Branch (ASPB), or its predecessors, since 1977 at the University of Wisconsin (UW) - Madison Space Science and Engineering Center (SSEC). It currently is a collaborative element of the Cooperative Institute for Meteorological Satellite Studies (CIMSS), at UW.



1958 - Meteorological Satellite Section of USWB Leroy H. Herman satellite instrument calibration - radiative cloud analysis - ERBE [retired]

1959 - Explorer-7 Geary M. Callan s/w development for NWP and satellite retrieval applications - gridded data set handling - data set formatting and decoding (GRIB, BUFR)

1960 - TIROS-1

1960 - TIROS-2 (IR)

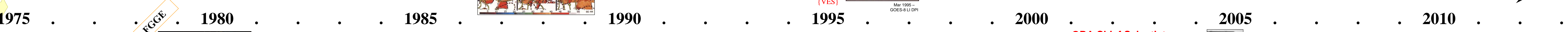
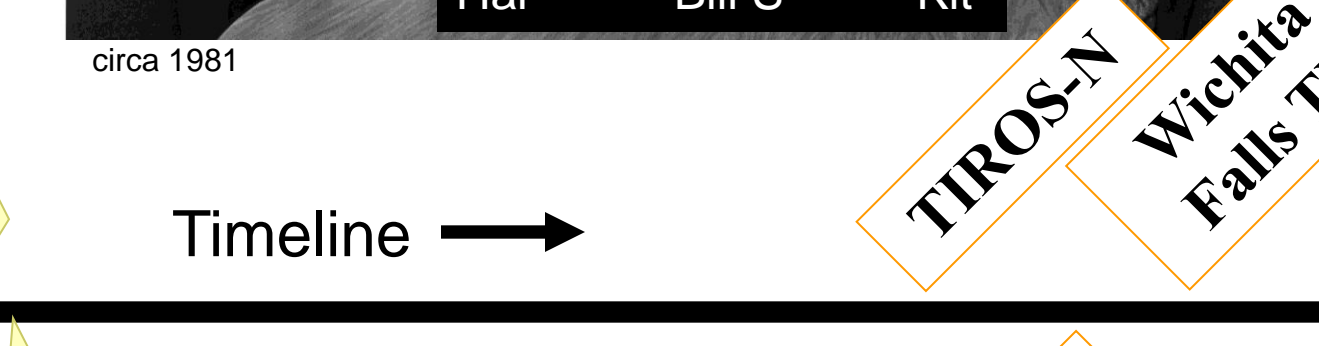
1961 - Congressional mandate for ops of weather satellites William E. ("Bill") Togstad analyses of satellite products for forecasting application [NWS/MPX(MN) FO - SenFctr][retired]

Dr. John M. Lewis development of NWP assimilation techniques for satellite data [OAR/NSSL - Researcher, Science historian]

Advanced Satellite Products Project (ASPP) (w/Menzel)

Anthony L. ("Tony") Siebers producing real-time satellite products for NWS demonstration [NWS/AKQ(VA) FO - MIC]

Roney Sorenson producing real-time satellite products for NWS demonstration [NESDIS/OSDPD; commercial meteorology...]



1963 - Nat'l Weather Satellite Center (David S. Johnson)

1966 - ATS-1 (geostationary)

1969 - NIMBUS-3 (SIRS sounder)

1970 - NOAA established

1972 - NOAA-2 (VTPR sounder)

Dr. W. Paul Menzel radiative transfer - Australian & European collaborations - VAS, GOES-8, MODIS product demonstration - satellite cloud properties & analyses - teaching [UW-AOS Suomi Distinguished Prof, UW-SSEC Sen Sci]

Gary S. Wade McIDAS application - VAS demonstration projects (NSSFC, GUFMEX) - geo SST - GOES Sounder DPI - Sounder product application/display/validation

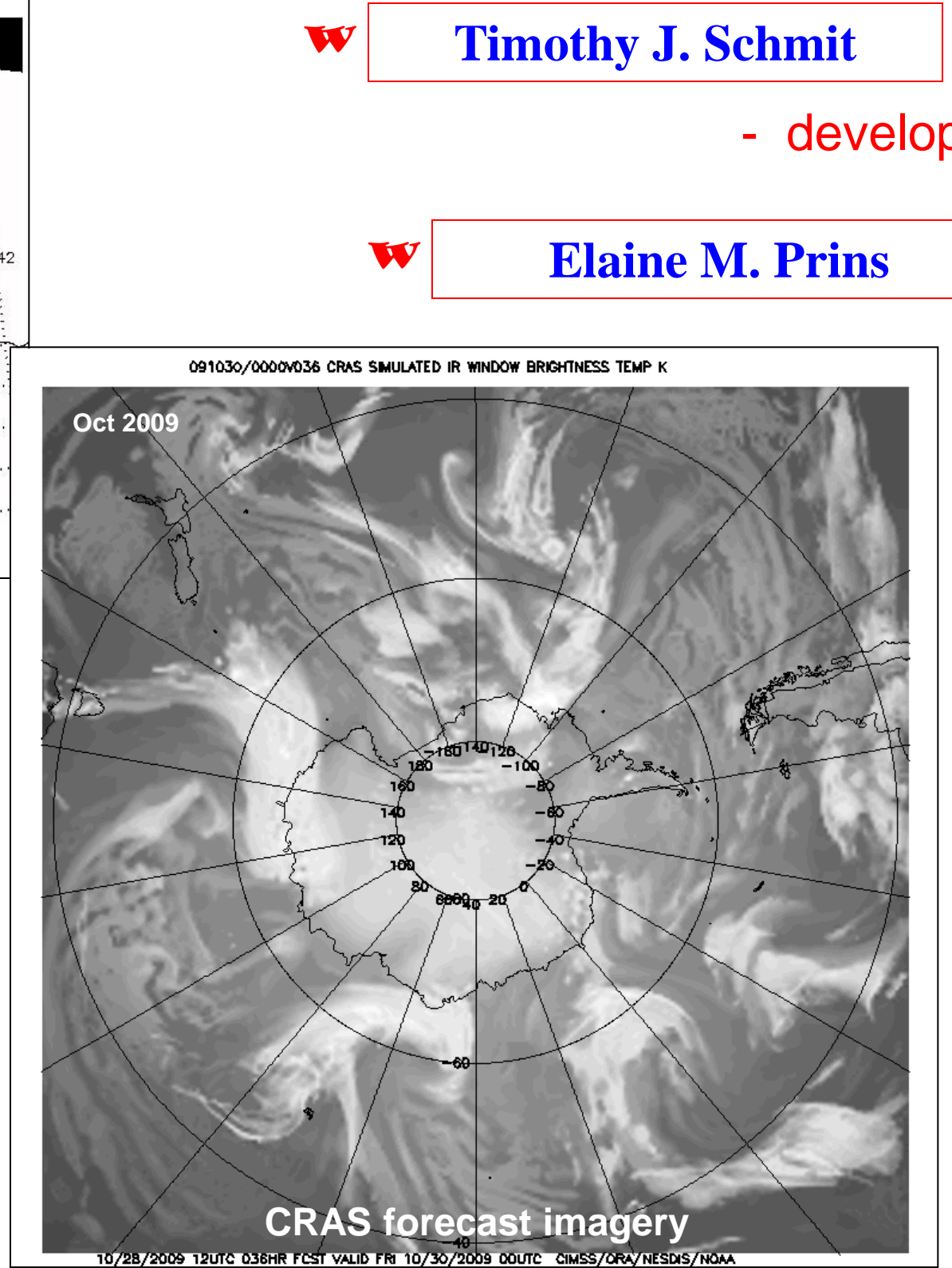
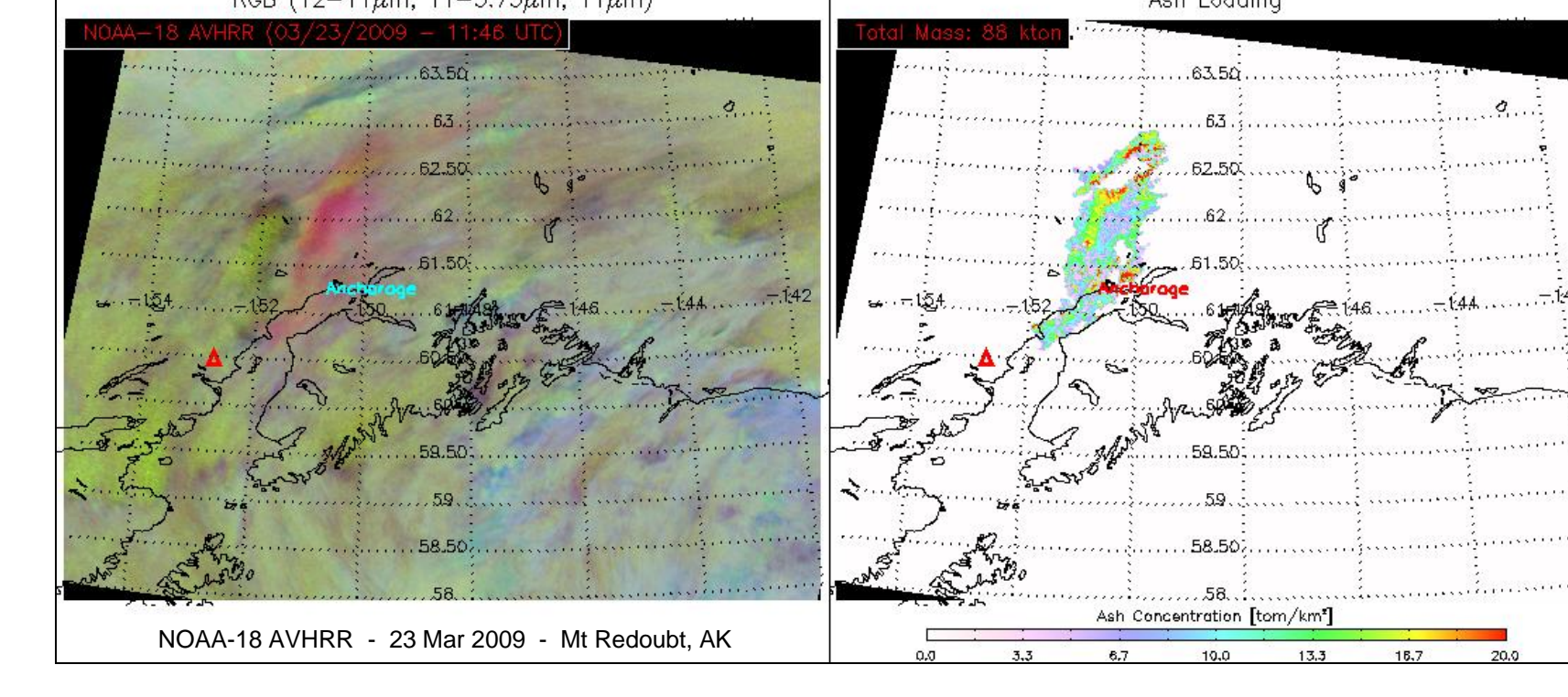
Robert M. ("Bob") Aune satellite data assimilation (cloud, moisture, mass) - CRAS (CIMSS Regional Assimilation System) - NWP forecast imagery - dynamic "nearcasting" system - mentor to J. Gerth

Cecil A. Paris satellite data processing - grad studies [NESDIS/OSDPD]

ASPB Mission Details

The ASPB is primarily responsible for the research and development leading to procedures to validate the calibration of measured radiances; satellite derived products and displays useful for short term weather forecasting; algorithms for deriving temperature and moisture soundings from satellite radiance measurements; algorithms to estimate atmospheric motions and their heights by tracking cloud and water vapor displacements in sequences of satellite images; algorithms for inferring radiative and cloud properties (amount, height, thermodynamic phase, particle size, optical depth, and emissivity) from visible, near-infrared, and thermal channels, including CO2 and H2O sensitive channels; optimal use of satellite derived mass and motion information in data assimilation and numerical weather prediction systems; and, satellite derived fire, smoke, volcanic ash, and aerosol products for real time monitoring and climate change studies.

Additionally, the ASPB assists with operational implementation of new algorithms, training the user community in new satellite capabilities, and planning the evolution to advanced instrumentation such as improved multi-channel imagers and high spectral resolution interferometer sounders. Finally, the ASPB collaborates with the international user community to improve exploitation of satellite observations. This is accomplished through active participation in panels and committees of groups such as: the Coordinating Group for Meteorological Satellites (CGMS), the Committee on Earth Observation Satellites (CEOS), and the International TOVS and Winds Working Groups; many of such groups, along with the World Meteorological Organization (WMO), EUMETSAT, and ECMWF, are partnering with the Group on Earth Observations (GEO) as it coordinates building a Global Earth Observation System of Systems (GEOSS) with its initial 10-Year Implementation Plan (2005-2015).



Timothy J. Schmit validating and improving GOES (Imager & Sounder) products - GOES calibration and quality control - developing prototypes for future GOES products - GOES-R - promoting future hyperspectral geo-sounding

Elaine M. Prins geo satellite observation & analysis of fires and biomass burning - expand from SoAmer/NoAmer to global [UW-CIMSS]

Dr. Jeffrey R. Key high-latitude (polar) satellite meteorology and climatology - polar winds into operational applications - adj UW-AOS prof

Dr. Andrew K. Heidinger cloud (properties) remote sensing - AVHRR cloud climatology - SOI model - new sensor (VIIRS, ABI) algorithm development - adj UW-AOS prof

Michael J. Pavolonis cloud (properties) remote sensing - volcanic ash and aerosol detection

NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	NOAA/NESDIS Center for Satellite Applications and Research (STAR)	NOAA
Hayden	Menzel	(Prins)	Key
Development Laboratory (DL) {William L. Smith, Sr.}	Satellite Applications Lab (SAL) {Donald Miller}	{Frances C. Holt} Atmospheric Research and Development Division (ARAD)	{Ingrid Guch} Cooperative Research Programs (CoRP)
Office of Research and Applications (ORA) {Harold Yates}	{P. K. Rao}	{James F. W. Purdom, Jr}	{Marie C. Colton} Center for Satellite Applications and Research (STAR)
Natl Environmental Satellite Service (NESS) {David S. Johnson}	{John H. McElroy} Natl Environmental Satellite, Data, and Info Service (NESDIS) {Thomas N. Pyke, Jr}	{Robert S. Winokur}	{Gregory W. Withee}
NOAA {Robert M. White} {Richard A. Frank}	{John V. Byrne}	{Anthony J. Calio} {William Evans}	{John A. Knauss}
		{D. James Baker}	{VAdm Conrad C. Lautenbacher, Jr}
			{Jane Lubchenko}