

SWUG/NMGIC Fall Meeting 2007



The Southwest Users Group (SWUG) and the New Mexico Geographic Information Council, Inc. (NMGIC) will hold a joint meeting in late October / early November 2007 in Santa Fe, New Mexico. The theme is "Treat Us To Your Tricks", with a focus on "how you did it" (whatever it was ?) and sharing your "tips" with your colleagues in the geospatial community. The meeting is set for October 30th- November 1st, 2007 at the La Fonda Hotel on the Santa Fe Plaza. SWUG is a multi-state (Arizona, Colorado, New Mexico, Utah, and Wyoming) organization devoted to users of geospatial technology of all types. Previous SWUG meetings have been held in Flagstaff, AZ (2006), Park City, UT (2005), Telluride, CO (2004), Jackson, WY (2003): the site rotates between the five states. All sorts of detailed information about the meeting can be found at the SWUG website (www.swuggis.org) along with the NMGIC website (nmgic.unm.edu): registration, schedule, speakers, sponsors, events and entertainment.

A brief generalization of the program is given on page 3. Committee Co-Chairs for SWUG are Doug Strech (doug@mrgcd.us) and Kurt Menke (kmenke@edac.unm.edu). (Continued on page 3 ...)



Using Earth Observations Data to Improve Dust Forecast Model for Public Health

by Stan Morain (PI; Earth Data Analysis Center), Amy Budge (EDAC), Karl Benedict (EDAC), and Bill Sprigg (University of Arizona, Department of Atmospheric Sciences)

Dust is a global problem that contributes to respiratory illnesses in populations worldwide. Winds pick up dust originating in one region and carry it aloft for long distances before depositing it in another region. These large dust storms can be viewed in satellite images. At the "breathing level" these dust storms contribute to poor visibility leading to dangerous conditions on roads, as well as to health problems for people with respiratory illnesses, especially in the elderly and very young children.

The Earth Data Analysis Center (EDAC) and the University of Arizona's Department of Atmospheric Sciences have teamed to adapt the Dust Regional Atmospheric Model (DREAM) to forecast dust events in the southwestern United States. By assimilating finer spatial and temporal resolution data from NASA Earth observations as replacement input parameters to the model, the

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The Map Legend

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SWUG / NMGIC Fall 2007 Meeting (Continued from page 1)

Generalized Program:

	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm
Tues 10/30	Registration (7:30)& Continental BF	ESRI Workshops: 8:00am - 10:00am break (10:00-10:15) 10:15am - 12:15pm			Lunch - on your own, from 12:15pm - 2:00pm		Welcome & Announcements, followed by Plenary Session / Keynote Address		Opening of Exhibits, followed by Break		Poster Session Exhibits Ice-Breaker w/ Cash Bar		Let's Go Bowling at Silva Lanes 9pm - 11pm	
Wed 10/31	Registration & BF Buffet (7:30)	Technical Paper Sessions 8:30am - 12:00pm			Box Lunch Provided 12:00pm - 1:30pm		Technical Paper Sessions 1:30pm - 5:00pm			Dinner Reception & Poster Awards South Ballroom 6:30pm - 8:30pm				
Thu 11/1	Registration & BF (Continental)	Tech Paper Sessions 8:30 - 10am		Closing Session & SWUG Business Mtg 10:30-11:30am										

Mystery Photo Location

This “mystery photo” was taken at an undisclosed location here in New Mexico. Can you identify the location?

A fantabulous-luxo prize will be awarded to the first person who correctly identifies the location.

Contact Rick K. or Kurt M. with your answer.



Dust Forecast / DREAM continued

(Continued from page 1)

team aims to improve DREAM's output performance thereby more accurately forecasting impending dust events in this region. Funded by NASA, the ultimate goal of the Public Health Applications in Remote Sensing (PHAIRS) project is to enhance public health decision support systems with the improved model output.

DREAM was developed by the University of Malta for the Mediterranean region and is nested within the National Weather Services' NCEP/eta weather forecast model. Input data to the model include NCEP global weather forecasts, global soil data, global land cover data, and global topography. One of the first steps in the project was to adapt the model to conditions in the southwest U.S and then to improve the model by replacing some of the global input data with finer resolution data from NASA Earth observing missions. DREAM's output was significantly improved when the MODIS MOD12 land cover data (specifically the bare ground class) and SRTM topography data were used (Figures 1a and 1b). Further improvements were made by nesting DREAM in the non-hydrostatic mesoscale model (NMM) which produces a finer resolution output (Figure 1c).

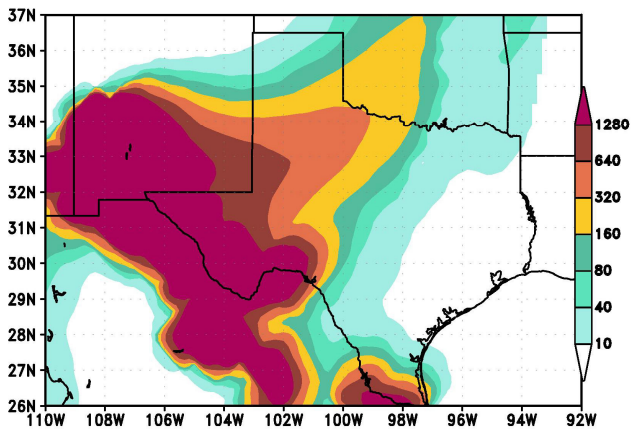


Figure 1a. DREAM output without NASA data

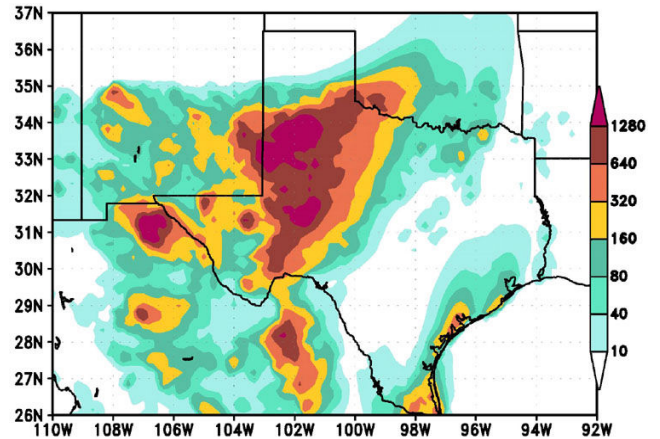


Figure 1a. DREAM output with NASA data

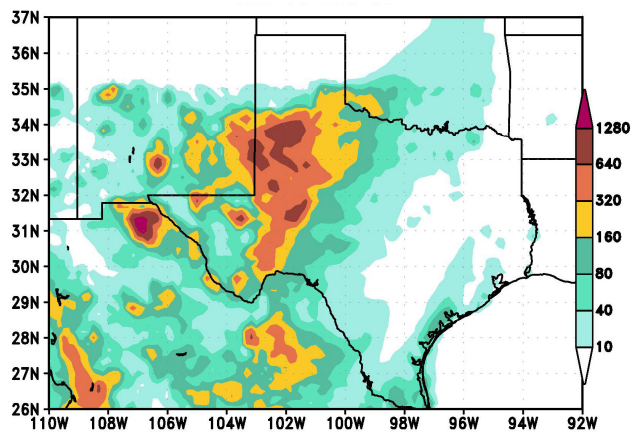


Figure 1a. DREAM output with NASA data using NMM

Verification and validation of the model's performance are conducted by comparing the output with PM2.5 and PM10 observations collected by EPA AirNOW ground monitoring stations. Historical and current data are being downloaded continuously from the EPA network to build an archive of PM2.5 and PM10 ground observations with which to compare the DREAM output.

Dust Forecast / DREAM continued

The approach of the PHAIRS project to enhance public health decision support systems (DSSs) is to provide information on environmental conditions relevant to respiratory patients to public health officials via the Internet. A services-oriented architecture based on open source technology has been employed to deliver data and information to users through a web-mapping client interface (Figure 2). At the core of this architecture is the simple object access protocol (SOAP). A sophisticated interface using SOAP services delivers PHAIRS products to public health DSSs. Products also can be accessed via OGC Web Map Services. PHAIRS products and information available to users at their desktops include statistical data, PDF maps, time-series animations (Figure 3), and dust concentration plots.

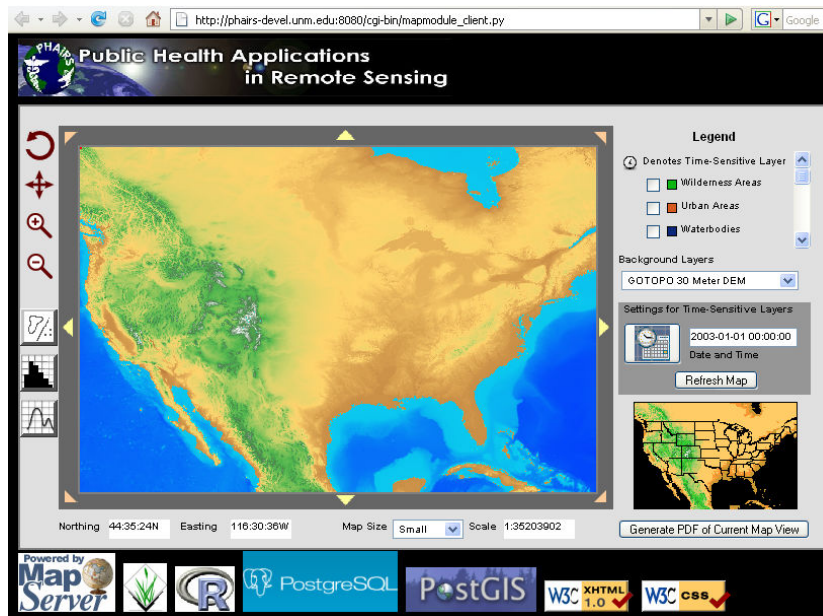


Figure 2. PHAIRS web-mapping client

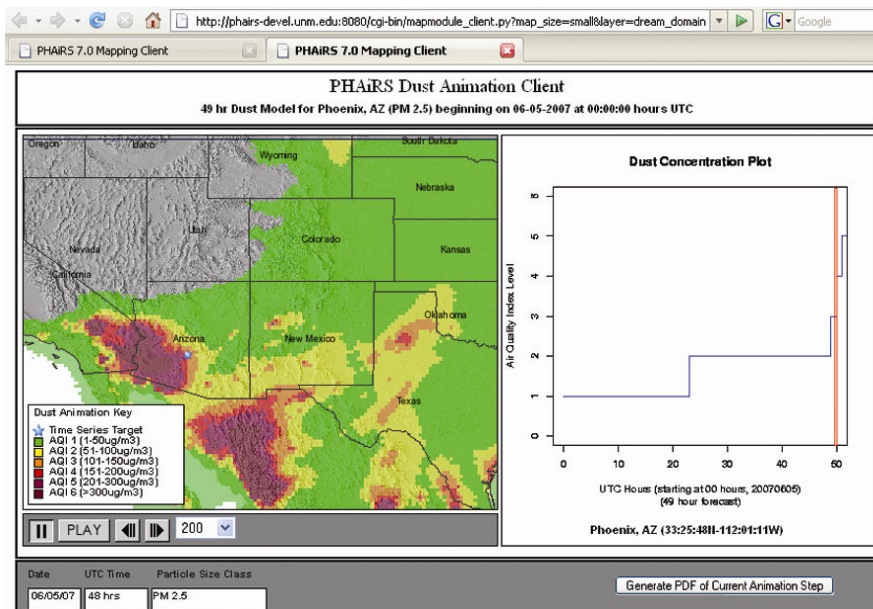


Figure 3. PHAIRS time-series animation product

Dust Forecast / DREAM continued

Benefits to the human health community include earlier detection and immediate response to outbreaks, timelier reports for sounder decisions, more efficient staffing of facilities and hospitals, and improved diagnoses of respiratory conditions. On a global scale, this project contributes to the GEOSS Human Health Societal Benefit Area, Task HE-07-02 which includes improved databases of environmental measurements relevant to health and improved models of exposure and health effects data.

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2008 GIS Calendar of Events

NSGIC

2008 Annual Conference March 9th-12th, 2008, in Annapolis, Maryland

GITA

2008 Annual Conference March 9th-12th, 2008, in Seattle, Washington

ASPRS

2008 Annual Conference April 28th-May 1st, 2008 "Bridging the Horizons -
New Frontiers in Geospatial collaboration", in Portland, Oregon

NMGIC

Spring Meeting 2008, Dates and Location To Be Announced

ESRI

28th Annual International User Conference, August 4th-8th, 2008, in
San Diego, California

URISA

2008 Annual Conference October 7th-10th, 2008, in New Orleans, LA

SWUG

2008, Wyoming, Dates and Location To Be Announced



2008 Membership Dues

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Corporate: \$200.00 - Includes two seats to each meeting, discounted exhibit fees, and an ad in each Map Legend

Payment should be mailed to: NMGIC, Inc. , PO Box 9445 Albuquerque, NM 87119-9445