

## The New Mexico State Climate Office and CARSAME Portal for Community Access to Meteorological, Satellite, and Model Archives

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Our community data portal is using the UNIDATA Thematic Real-time Environmental Distributed Data Services (THREDDS) and Repository for Archiving, Managing and Accessing Diverse Data (RAMADDA) server applications. The purpose of this portal is to make available to the public, data sets that have been archived at NMSU's Center for Applied Remote Sensing in Agriculture, Meteorology and Environment (CARSAME) and New Mexico Climate Center but not available to the public. The data portal increases the availability of near real-time satellite, numerical weather prediction model output, and surface weather station data to the environmental sciences community locally and throughout the region. Our data portal is growing and currently we have archives of CFSv2 data, WRF initialized with NAM data, and LANDSAT imagery.

Our original plan was to purchase a Dell PowerVault MD1000 storage server but we found another machine at a lower cost and had more storage capacity. The Dell cost had increased significantly from the proposal date to date of contract award and was no longer an option for us. This custom machine similar to the Backblaze Storage Pod (<http://blog.backblaze.com/category/storage-pod/>) was built from individual components including power supplies, processors, memory chips, boot hard drives, RAID controller, CPU cooling fan, 5-bay backplane case, 4U server enclosure, heat sinks, and miscellaneous cables and hardware. Total storage amount for data and imagery is about 100 TB. UNIDATA funds were also used to purchase a Supermicro 4 CPU machine with a total of 48 cores that we are using for data processing and web service.

One of the primary purposes of the portal is to serve the education and research community not only at New Mexico State University but regionally and across the border into Mexico. For example the data served on the portal is used in a newly offered *Introduction to Air Pollution* ES 460 course in our Environmental Sciences department at NMSU. In this course we investigate the impacts of meteorology on air quality through the study of past events. We visualize data using UNIDATA's Integrated Data Viewer (IDV). The RAMADDA application is being used to store case studies that can be viewed and used by students and other interested researchers and at NMSU and by the community. Our data portal will also be a key component of any climate related course we offer at NMSU.

A research group taking advantage of this archive is one studying wind erosion and air quality in the southwestern US. Several faculty members at New Mexico State University, the University of Texas El Paso, and Texas Tech have active research projects in the study of the sources and transport of dust in the Chihuahuan Desert region. These projects have made extensive use of our infrared and visible NOAA AVHRR and GOES imagery to determine dust plume boundaries.

Access to the THREDDS portal is located at: <http://cirrus.nmsu.edu:8080/thredds/> and the RAMADDA at <http://cirrus.nmsu.edu:8080/repository>. Links to this will also be from <http://weather.nmsu.edu>.



Figure 1. Student using the THREDDS server to acquire Landsat imagery.