

# Ten Years of ARM External Data

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## XDC Mission

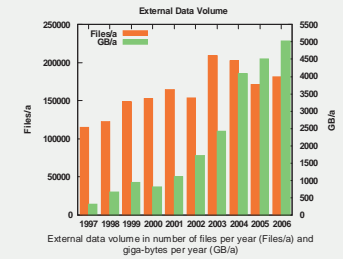
The ARM External Data Center (XDC) acquires, processes, and transmits data to the ARM Archive, that are originally produced or collected by organizations through funding by other agencies or programs external to ARM. The criteria for inclusion are:

- Scientifically relevant and complementary to ARM data
- Not otherwise archived, or easily accessible
- Significant value added by processing to follow ARM standards

Here we show a sampling of external data-streams in each of the ARM measurement categories across all of the ARM sites.

## XDC celebrates 10 years of service

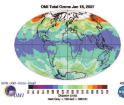
When the XDC began operation in October 1996, it processed 36 data-streams based on 11 external data product collections and transferred an average of 12 GB/month to the Archive. Since then, the XDC capacity has grown to meet the scientific and programmatic needs. Today, the XDC handles 250 data streams based on 31 external data product collections with an average volume of 473 GB/month.



## External Data-Streams and Measurements by Instrument Category and Location

### Aerosols

Aerosol index, size distribution, concentration, absorption, scattering, optical properties



Datastreams: CSPHOT, OMI, IAP

OMI Total Ozone  
<http://www.giss.nasa.gov/ocm/omt/omt.html>  
gsasv1200701M\_scpd\_omt\_omt\_20070118.png

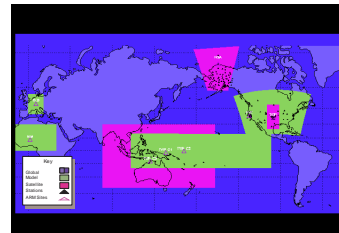
### Radiometric

Radiation, downwelling longwave irradiance, upwelling longwave irradiance, diffuse shortwave irradiance, direct shortwave irradiance, downwelling shortwave irradiance, upwelling shortwave irradiance, diffuse spectral irradiance, direct spectral irradiance, shortwave irradiance



Datastreams: NOAA RAD, USDA

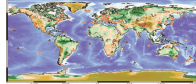
### Sites/Domains



### Atmospheric State

Atmospheric moisture, pressure, temperature, turbulence, horizontal wind, precipitation, vertical velocity, precipitable water, vertical velocity

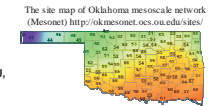
Global Suominet GPS sites  
<http://www.suominet.ucar.edu/index/Global.html>



Datastreams: ACAR, SUOMINET GPS, WPDN

### Surface Meteorology

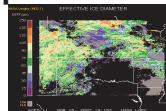
Soil temperature, soil moisture, precipitation, surface condition



Datastreams: ABRFC, OKM, KSU, NWSSURF, CRN

### Cloud Properties

Cloud base height, fraction, top height, droplet, liquid water path, optical depth, sky brightness temperature, upwelling shortwave irradiance, radar doppler

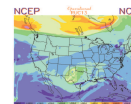


Datastreams: VISST, WSR-88D

VISST cloud product image from Francis Menz's group: <http://lingier.larc.nasa.gov/>

### Derived Quantities & Models

Advective tendency, cloud liquid water, cloud ice water, net radiation, radiative heating rate, surface skin temperature, fluxes, surface stress, surface albedo, convection, virtual temperature, radiative heating rate, planetary boundary layer height, downwelling longwave irradiance

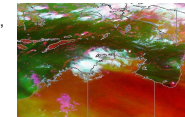


Datastreams: ECMWF RUC, ETA, GFS, MOLTS

RUC Pressure image  
<http://ftp.cgd.noaa.gov/ftp/pub/rapid/rapid+12>

### Satellite Observations

Longwave radiance, shortwave radiance, atmospheric moisture, ozone, cloud liquid water, precipitable water, precipitation



Datastreams: GOES, GMS/MTSAT, SSM/I, LANDSAT

MTSAT image from TWP-ICE IOP

## Upcoming Datastreams

### GFS (Global Forecast System) model:

**Measurements:** absolute vorticity, convective available potential energy, convective inhibition, cloud water, surface lifted index, ozone mixing ratio, pressure, precipitable water, RH, specific humidity, temperature, total ozone, u-wind, v-wind, vertical speed shear, pressure vertical velocity

### TDMA (Tandem Differential Mobility Analyzer) from Texas A & M University :

**Measurements:** size-resolved hygroscopic growth factor, size-resolved volatility.

## Current List of External Data

XDC Data Description Page:  
<http://www.arm.gov/xds>

Don't see a data set on our page?

1) Send an email to [xdc\\_oper@arm.gov](mailto:xdc_oper@arm.gov) for assistance

OR

2) Submit your request for new data to the ARM ECR System (<http://ecr.arm.gov>). If approved the XDC will begin the process as directed through the ECO system.