

# ClimDB Next Generation Meeting

- The Environmental Data Initiative (EDI) organized a workshop:
  - Titled the “Next generation climate and hydrological data products”
  - University of New Mexico in Albuquerque, NM, 12-14 March 2019
  - Participants were LTER Information Managers, EDI Staff, and scientists from both LTER and US Forest Service
  - Objectives:
    - Evaluate the needs and desire for accessing harmonized multi-site and multi-agency climate and hydrology data
      - Consider archive and replacement of ClimHydroDB
    - Consider the infrastructure required to collect and store these data
    - Consider new technologies or workflows based on current data storage models

# Workshop Overview

- Archive ClimDB/HydroDB (ClimDB) data in EDI
  - ClimDB is too difficult to maintain and will be retired
- Explore CUAHSI HIS as a destination for climate/hydrology data
  - Prepare archived ClimDB data using CUAHSI ODM
  - Evaluate use of CUAHSI tools to replace ClimDB current functionality
  - Evaluate CUAHSI ODM as a framework to harmonize high temporal data
- An RFC will be sent to the ClimDB community
  - Consider proposal from workshop
  - Future workshops planned

CUAHSI= Consortium of Universities for the Advancement of Hydrologic Science

ODM= Observations Data Model

HIS= Hydrologic Information System

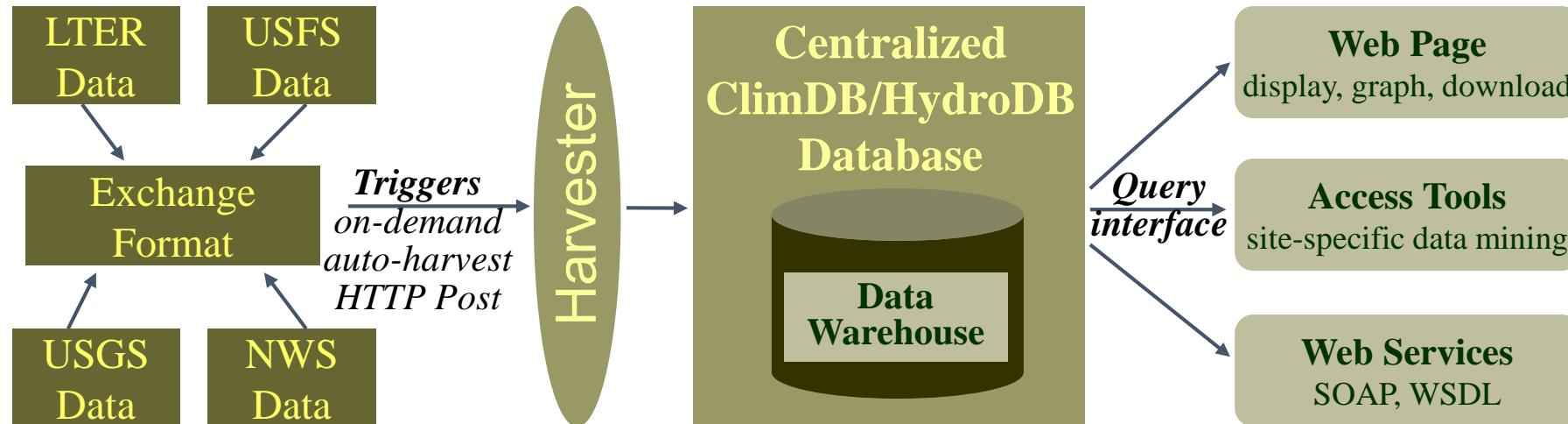
# ClimDB/HydroDB Data Providers

- Individual sites
  - Participating sites manage and control original source data within their local information systems
  - Sites provide data as a static or dynamically created file
- Exchange format
  - Consistent, comma-delimited file
  - Flexibility allows contributors to add or remove parameters from harvest files at any time
  - Attributes and units standardized and based on a controlled vocabulary

# ClimDB/HydroDB

## Harvester / Database/ Query Interface

Data Providers → Central Site → Public User



# ClimDB/HydroDB Site Contributions

- 45 total participating sites
  - 24 LTER sites + 2 International LTER sites
  - 22 USFS sites
  - 12 sites include USGS gauging stations
- 389 total measurement stations
  - 189 meteorological
  - 200 stream gauging (includes 65 USGS)
- 21 daily measurement parameters
  - Primarily streamflow, air temperature, precipitation
- >10 million daily values

# ClimDB/HydroDB – proposed step 1

- Archive all current ClimDB/HydroDB daily data - PASTA
  - Archiving will be done with little recourse to site
    - GCE Toolbox, R tools
  - Data will be prepared for archival in EDI (L0)
  - One data package per site
    - i.e., Wide format (all parameters) by date
    - One table per station
  - Generic EML will be applied
  - Sites will have the opportunity to update data and/or metadata
    - Available metadata will be pulled from the current ClimDB/HydroDB database
      - The ClimDB interface can be used to update site information
    - Deadline date for adding/editing to be determined

# ClimDB/HydroDB – proposed step 2

- Explore uploading ClimDB/HydroDB daily data to CUAHSI HIS
  - Data will be prepared in CUAHSI framework (ODM)
    - Examples for current ClimDB participating sites
  - Metadata to populate CUAHSI tables
    - CUAHSI tables: Data values qualified by sites, methods, variables, source, quality control
    - ClimDB parameters have been mapped to CUAHSI variables
    - Metadata from the current ClimDB (lat-long, elevation, methods, people)
    - Enter using CUAHSI templates
  - CUAHSI ODM compatible tables will be stored in EDI (L1), uploaded to HIS
    - One package per site
    - 6 CUAHSI-style tables per data package

# Future ClimDB/HydroDB (ClimDB/HydroDB 2.0?)

- Explore CUAHSI ODM framework for future ClimDB
  - Use high temporal resolution data that is in EDI (L0)
  - Convert data into common CUAHSI ODM framework for EDI (L1)
    - Keep native temporal resolution
    - Harmonized parameters and units
    - Select priority stations and parameters
  - Place select data into CUAHSI HIS (L2)
    - Choose priority stations and parameters
    - Aggregate data to hourly format