



# Data Management

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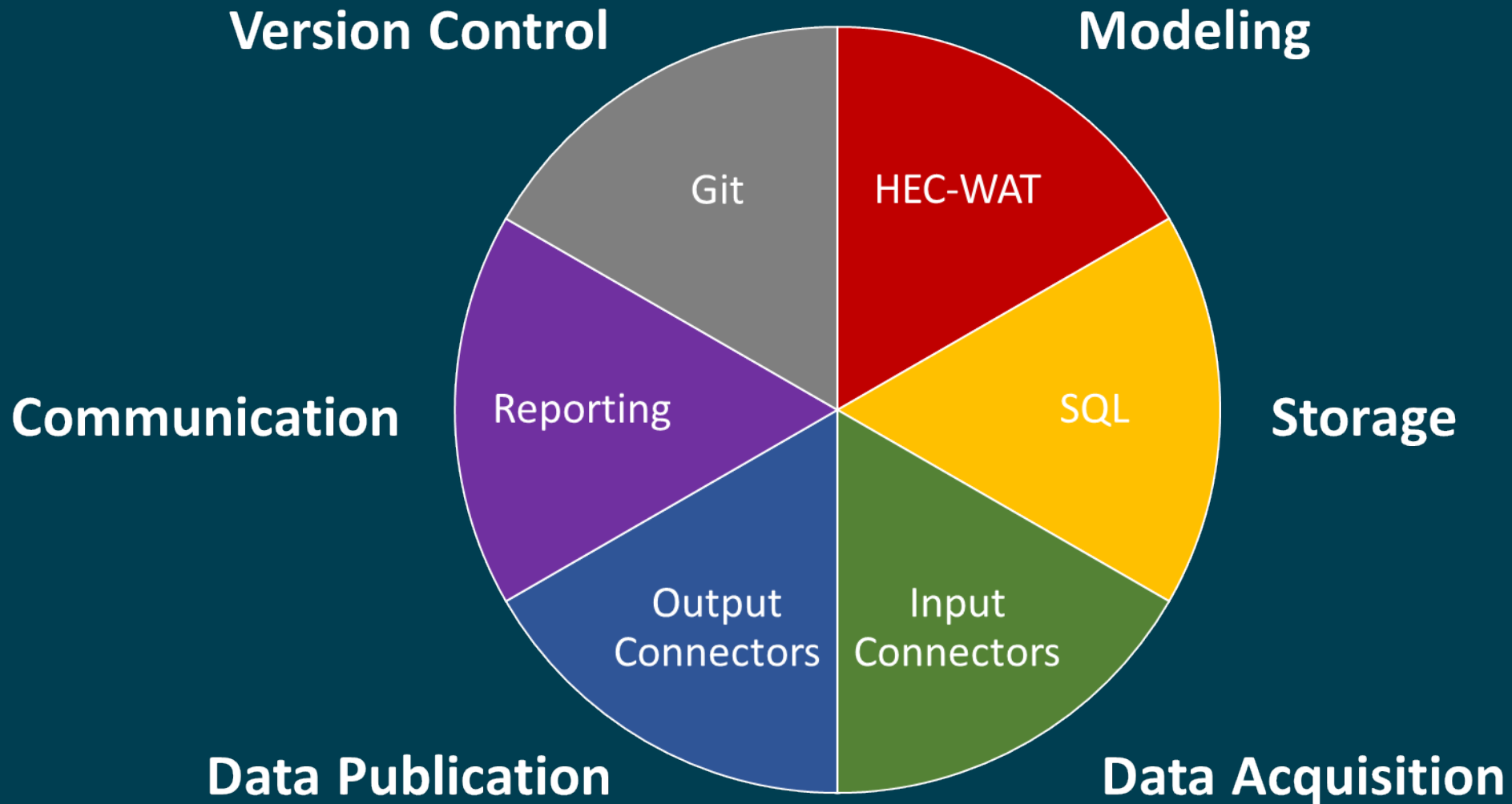


# Philosophy

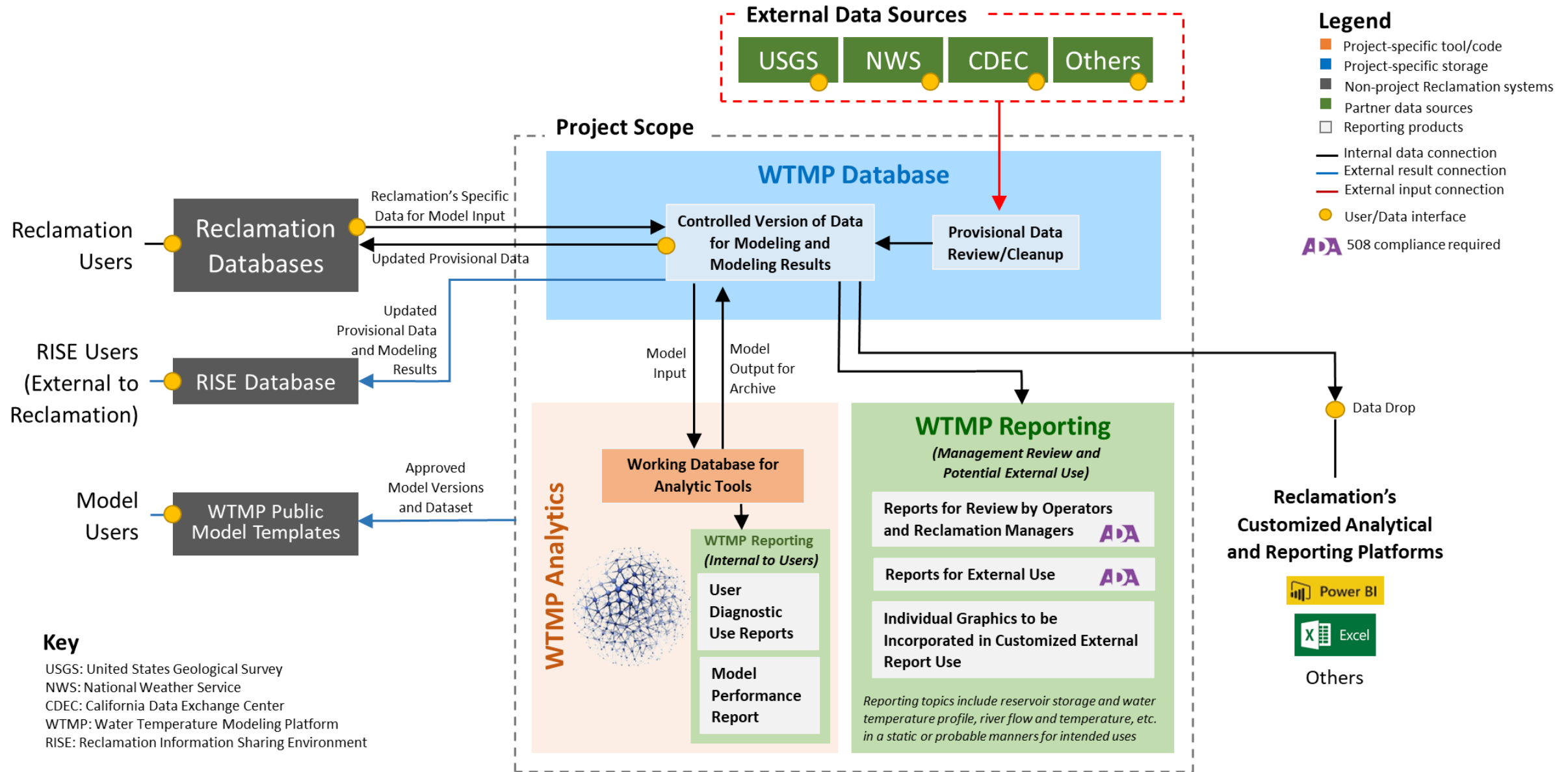
- Reclamation users
  - Reduce overhead and errors by automating common tasks
  - Minimize computation by using modern storage formats
  - Provide a secure, stable system for improved reliability
  - Build system flexibility for future extension
- External stakeholders
  - Enable transparency in model inputs
  - Give visibility into Reclamation output for decision making
  - Disseminate models to build community capability



# Architecture



# Data Workflow



# Workflow

- How Reclamation users will interaction with the system
  - Administrative workflow will be separate
- Minimize time user time commitment
- Provide for both standard and power users
  
- Broken into three components:
  - Inputs
  - Outputs
  - Reporting



# Outputs

- Reclamation specific outputs
  - Internal to Reclamation only
  - More detailed and in full fidelity
  - Compliance record keeping
  - Inputs/outputs kept in database
  - Separate runs for scenario planning
- Stakeholder outputs
  - Publicly available to all
  - Limited subset of outputs
  - Ability to recreate model runs

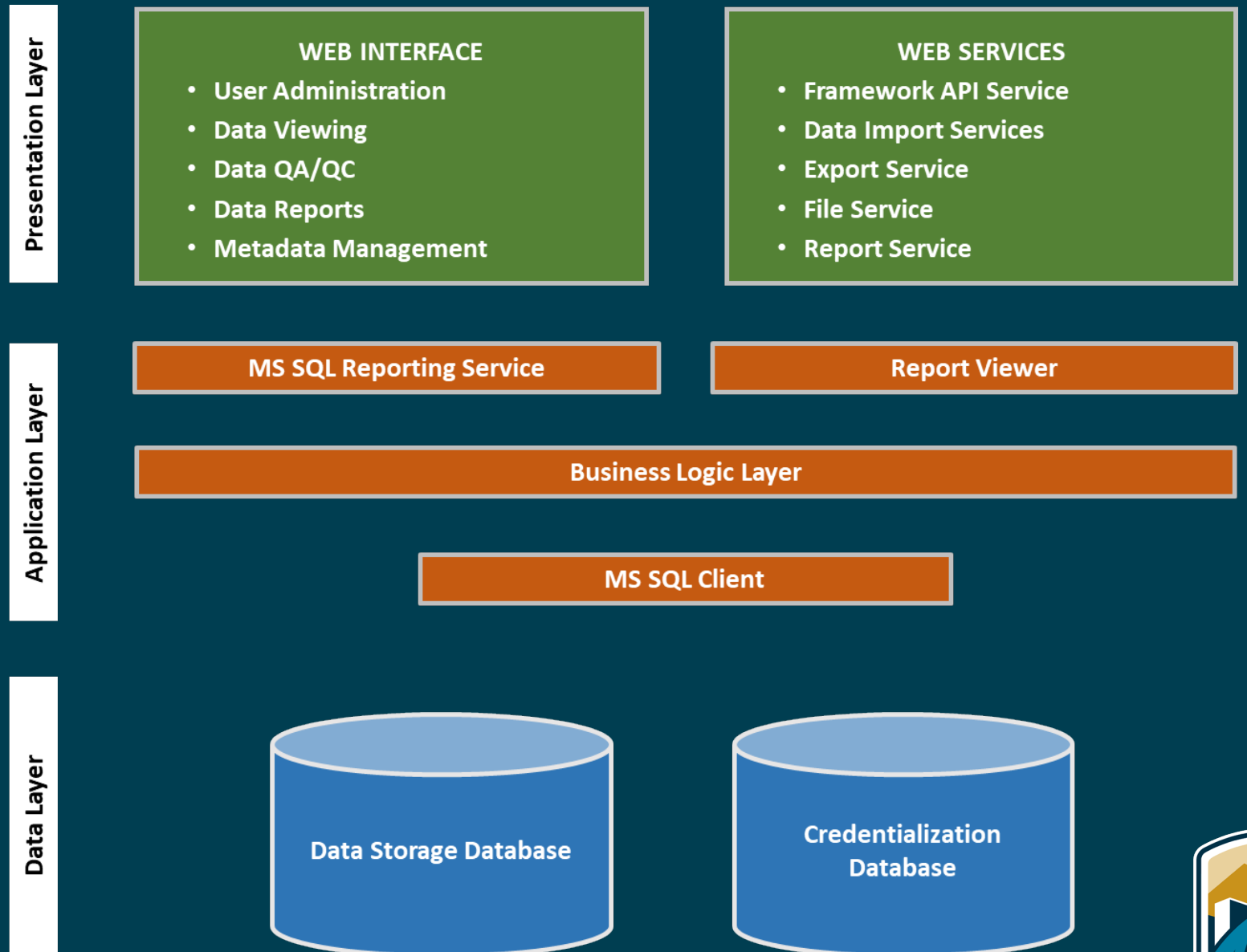


Models and data snapshot to provide redundancy

Recreatable from project database



# DMS Software Components



# Reclamation Information Sharing Environment (RISE)

- The **Reclamation Information Sharing Environment (RISE)** is a system for viewing, accessing, and downloading Reclamation's data via a centralized data portal.
- RISE can:
  - Access a range of data types (geospatial, time series, and other) from multiple data domains (e.g. water, hydropower, biological, water quality, and infrastructure/assets).
  - Locate data via the map.
  - Search the catalog for data.
  - Query and download observed and modeled data.
  - Plot and map data.
  - Get machine readable time series datasets to use as input for your models, applications and analyses via manual downloads or automated data exchange via web service.







## Reclamation Information Sharing Environment (RISE)

Reclamation / RISE

- RISE**
- Home
- Catalog
- Map Interface
- Time Series Query
- RISE API
- Contact Us
- Help
- About RISE

### Reclamation Information Sharing Environment (RISE)

#### Search Catalog

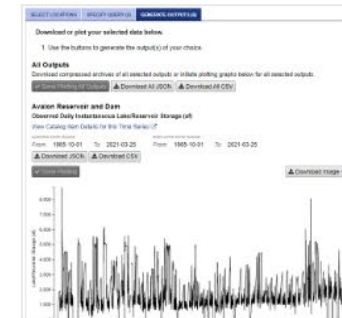
Use the catalog to search for datasets, see details about available data, and download data files.

#### Identify Data Sites



Use the map interface to browse data locations, interact with geospatial datasets, and access geospatial data services and downloads.

#### Query Time Series



Use the time series query to select specific locations, parameters, and time periods to query, view time series plots, and download machine readable data.

# RISE

- Data available via application program interface (API)
- Proves programmatic access to updated model outputs
- Build automated supplemental apps and reporting



The screenshot shows the Bureau of Reclamation's RISE API documentation page. At the top, the Bureau of Reclamation logo is on the left, and social media icons and a search bar are on the right. A navigation bar below the logo contains links for Water & Power, Resources & Research, About Us, Recreation & Public Use, and News & Multimedia. The main heading is "Reclamation Information Sharing Environment (RISE)". Below this is a breadcrumb trail: "Reclamation / RISE / RISE API". A left sidebar menu includes links for Home, Catalog, Map Interface (with an external link icon), Time Series Query, RISE API (highlighted), Contact Us, Help, and About RISE. The main content area is titled "RISE API Documentation" and "About the RISE API". It contains three sections: "What is an API?", "What kinds of data can be obtained from the API?", and "What format will the data be returned in?". A fourth section, "How do I use this API?", provides instructions on performing manual and programmatic queries. The final section explains how to view the Request URL and how to send a GET request programmatically.

Reclamation / RISE / RISE API

RISE

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Catalog  
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## RISE API Documentation

### About the RISE API

**What is an API?** An Application Programming Interface (API) allows applications to talk to one another. This API allows users to query RISE data programmatically and return a JavaScript Object Notation (JSON) object.

**What kinds of data can be obtained from the API?** For Geospatial and File Upload datasets, only the metadata (the descriptive information about each dataset) can be queried from the API. For time series datasets, both the metadata and data can be queried.

**What format will the data be returned in?** API queries will return data in JavaScript Object Notation (JSON) format, using the JSON:API specification. Documentation of the JSON:API specification is available at <https://jsonapi.org/>.

**How do I use this API?** There are two ways to perform API queries: manually or programmatically. To perform a manual query, click the "Try it Out" button below a resource name. Enter values next to one or more parameters, or leave all parameters blank to query all data. Click the "Execute" button. Scroll down to the "Server response" section to view the response. Click the "Download" button near the lower right corner to download the response as a JSON file.

By default, the first 25 results will be returned. Use the `itemsPerPage` parameter to change the number of results returned per page, and the `page` parameter to change which page of results is returned.

After executing a manual query, the Request URL can be viewed in the Responses section. To perform a query programmatically, send a GET request to the Request URL. The GET request must include the following header:



# Maintenance

- Only as good as the system maintenance
- Cloud deployment in the Azure space
  - 99.99% uptime guaranteed
  - Potential for failover access, hot/cold backups
- TSC software support
- TSC/contractor model maintenance support
  - Periodic recalibration
  - Geometry, operations logic improvements
  - Extending framework as new models become available

