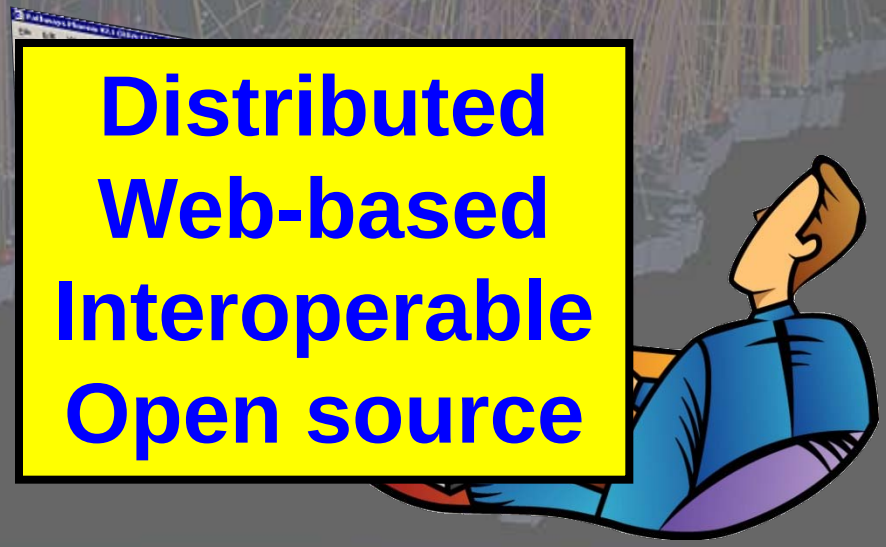
Geoscience Information Network (US GIN)

USGS
science for a changing world

AASG
Association of American State Geologists

1,000's of databases
1,000's of collections

80,000+ geologic maps



Distributed
Web-based
Interoperable
Open source

A different business model

- Traditional
  - Lobby Congress for a new program, housed in USGS. Share the appropriation.
- SGS 2.0
  - Build capacity and services that we can market to agencies, industry, academia

Implementation

INTEROP-GIN: system design and demonstration

Validated as data integration mechanism by USGS Community on Data Integration

Metadata profile for upstream petroleum industry

Contributions to National Geothermal Data System

Geoscience Partners

Oceans

- Ocean Observing Initiative (OOI)

Atmospheres

- Earth Science Information Partnership (ESIP) Federation

Earth Sciences

- CUAHSI- Hydrologic Information System
- National Geoinformatics Community (NGC)

Environment

- DataONE (Data Observation Network for Earth)

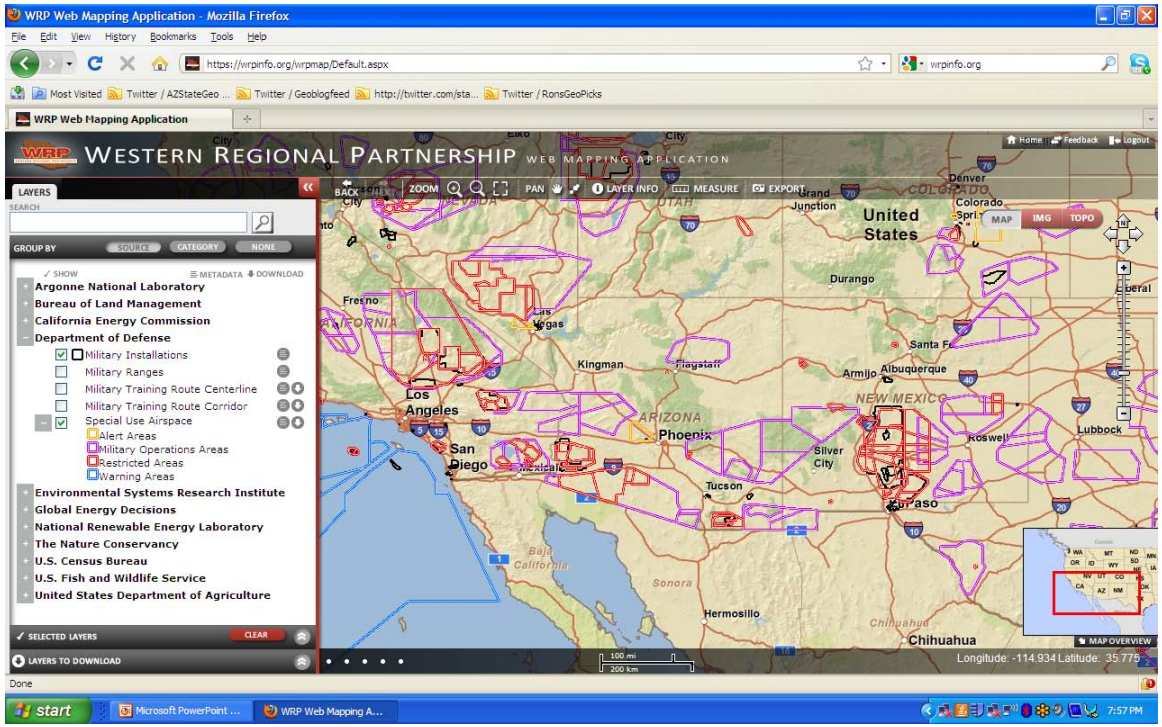
International

- OneGeology
- AuScope

Collaborators – New Partners

WESTERN REGIONAL PARTNERSHIP

- Working Agreement
  - 15 Federal Agencies and Governors in NM, AZ, UT, NV, CA
  - 10,000 GIS layers for land use management



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Energy Industry Metadata Standards Working Group

- End-to-end discovery, access, and exchange of upstream petroleum data

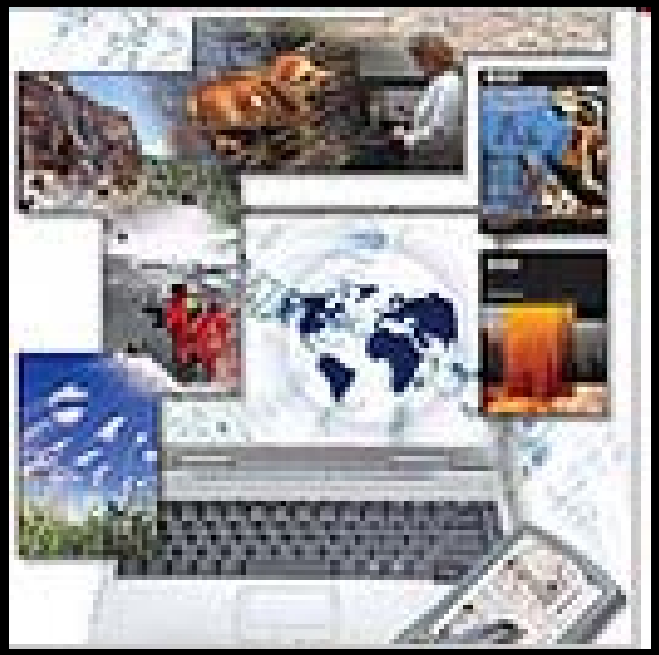
energistics
The Energy Standards Resource Centre

GIN (Geosciences Information Network) Architecture Example – *The NGDS Pilot Project*

Core Science Systems

Core System Informatics

- data integration services
- capacity
- framework for science programs



US GIN Strategic Plan

- business/sustainability model
- governance
- inventory of ‘owned’ resources
- delivery August 2011

USGS
science for a changing world

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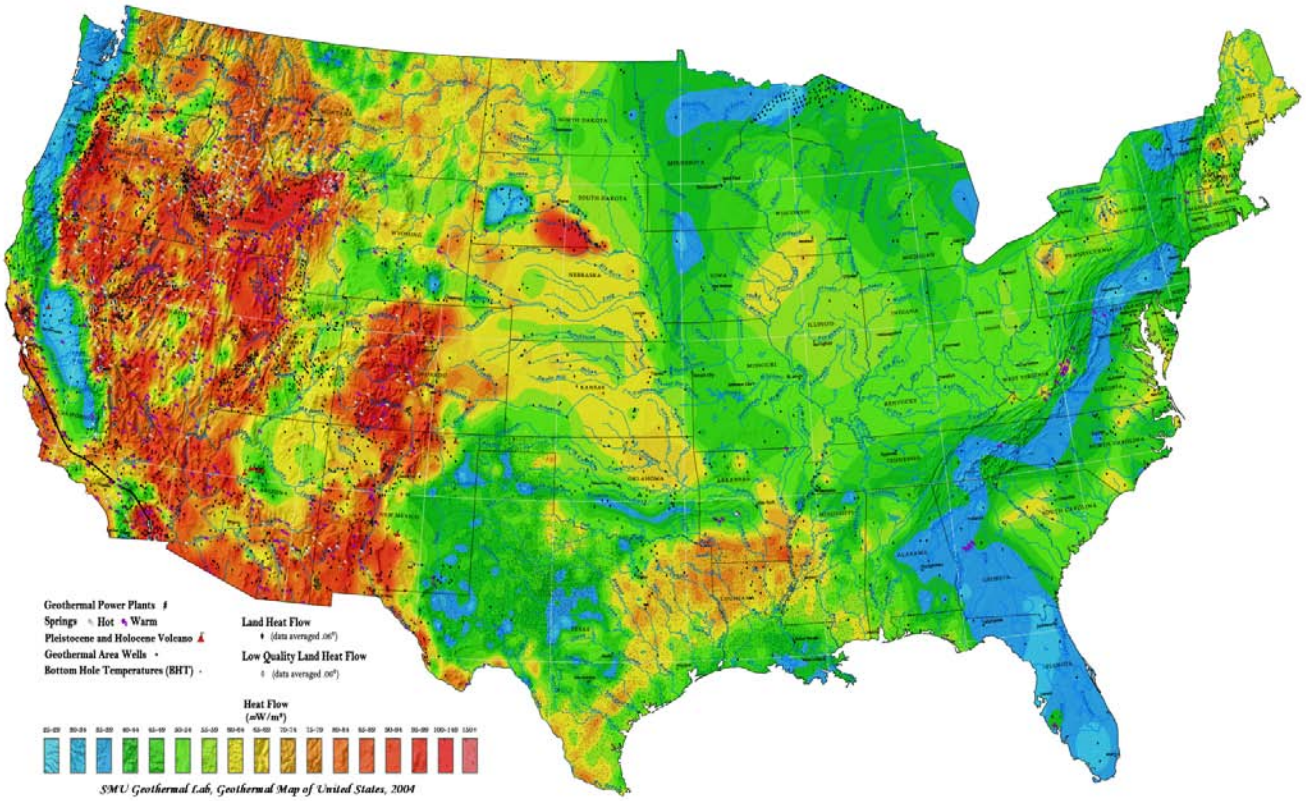
State Geological Survey Contributions to the National Geothermal Data System

www.stategeothermaldata.org



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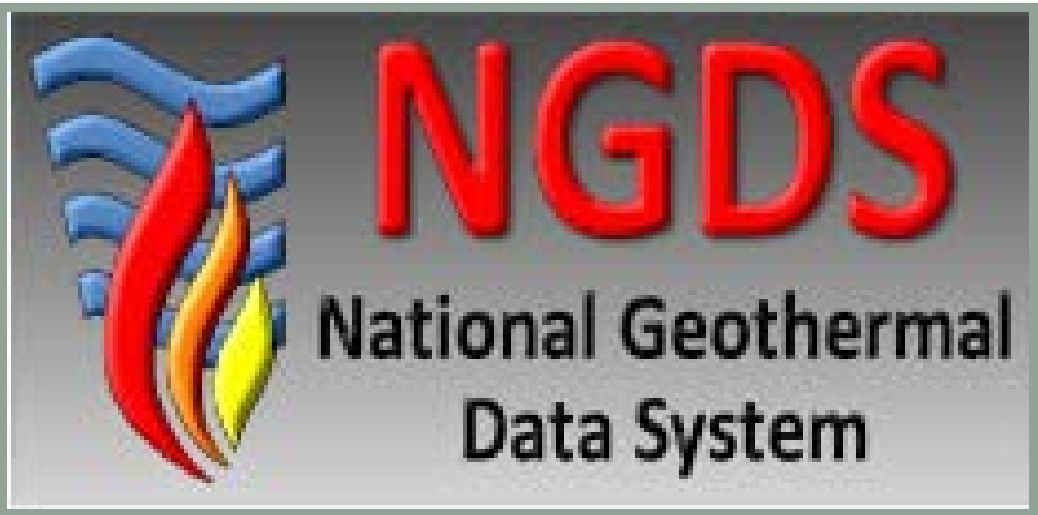

DOE & USGS Data

Boise State University

National Assessment

USGS

University Data

Southern Methodist University

"State Geological Survey Contributions to the NGDS"

AASG - AZGS

DOE GTP-funded projects

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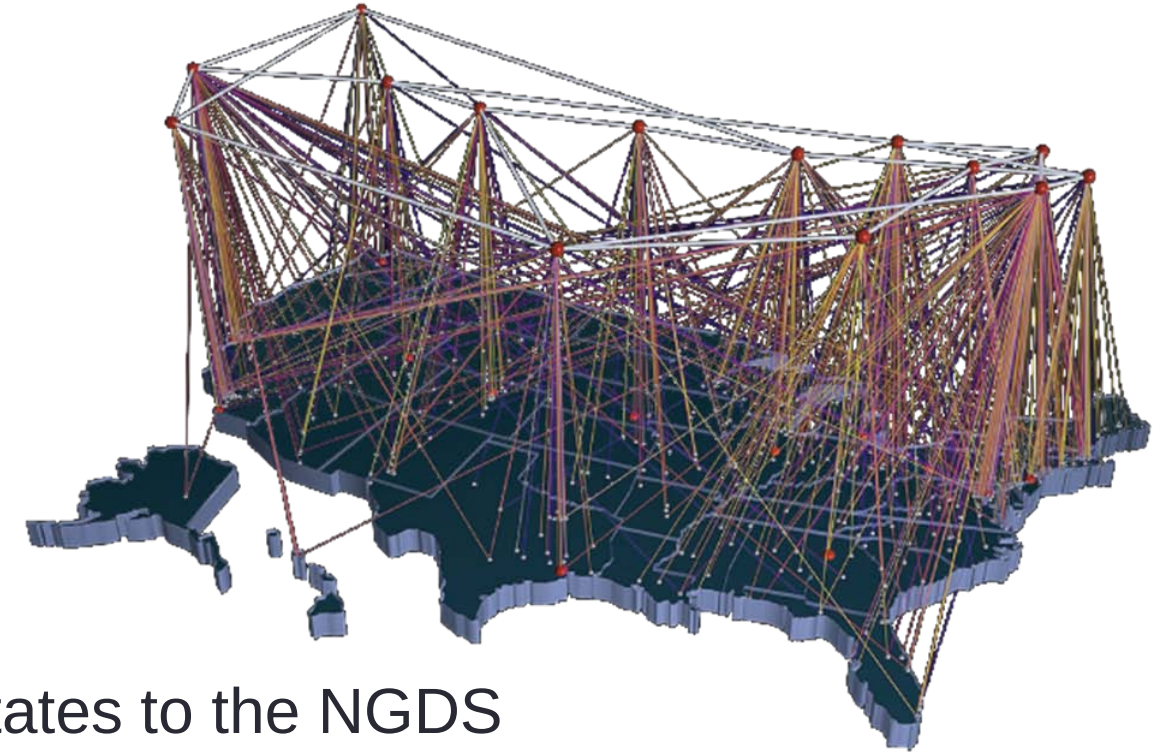
AZGS

Overview

National Geothermal Data System



- Data from all 50 states to the NGDS
- Streamline access to geoscientific information used to locate, evaluate, and develop geothermal resources
- Web-based, distributed, interoperable, open source
- New paradigm in data stewardship

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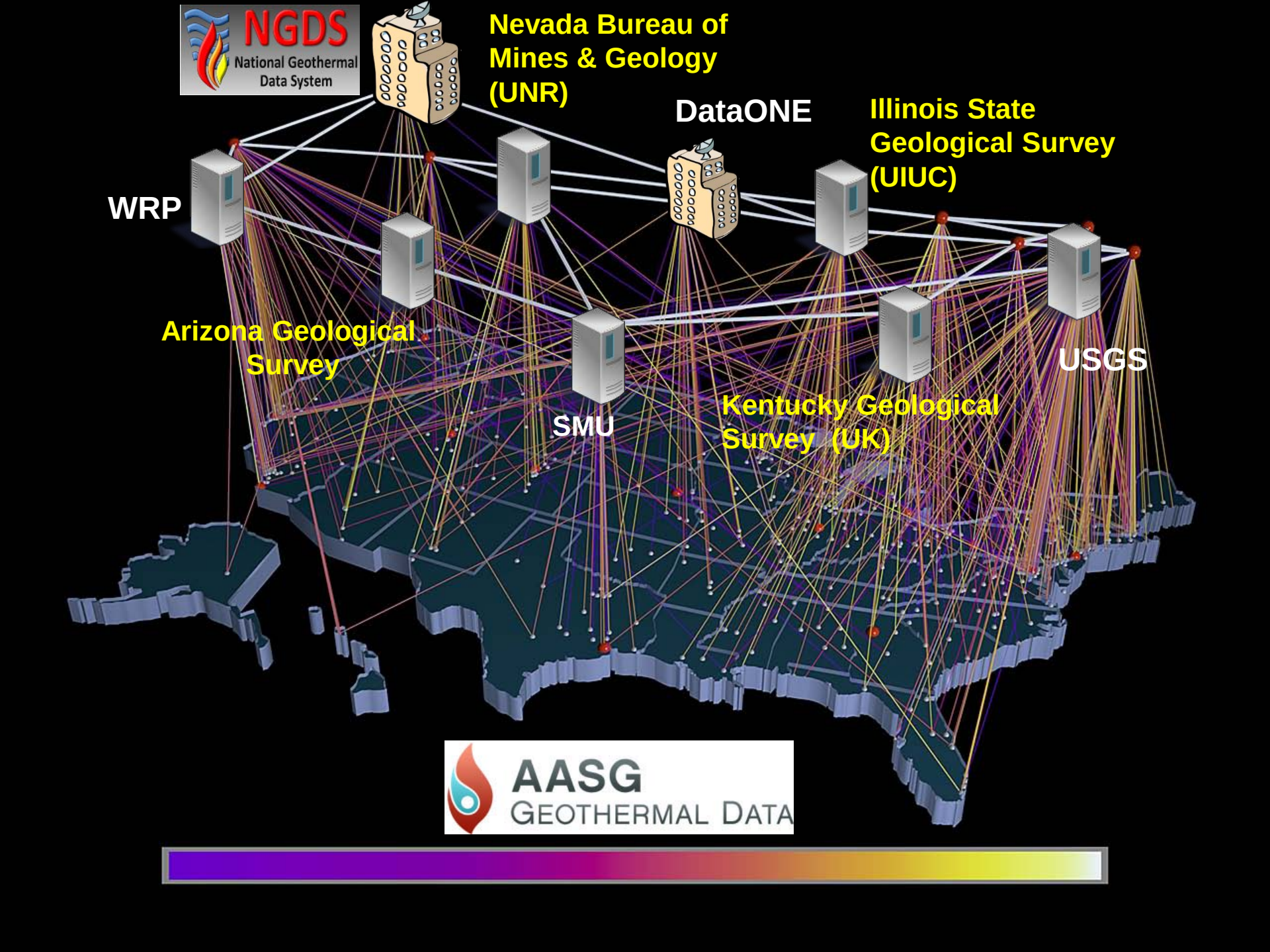
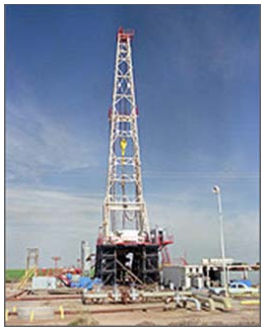
Arizona Geological Survey AZGS

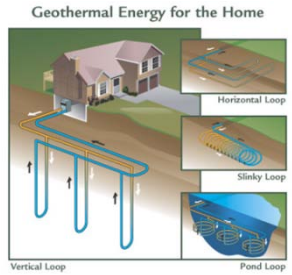

NGDS
National Geothermal Data System
Nevada Bureau of Mines & Geology (UNR)
DataONE
Illinois State Geological Survey (UIUC)
WRP
Arizona Geological Survey
SMU
Kentucky Geological Survey (UK)
USGS
AASG
GEOTHERMAL DATA

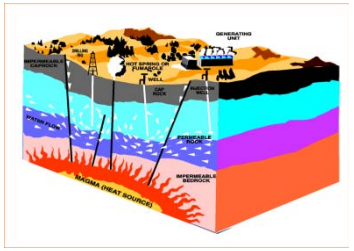
STATE GEOTHERMAL DATA

Selected data resources in State Geological Surveys

- 3.5 million wells – oil & gas, water
- 195,000 well logs
- 50,000 geothermal wells
- 750,000 BHT's
- 6 Tb existing digital data
- >75,000 scanned publications & maps
- 2.5 million feet of core
- 600,000 sample logs







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The components

- **Catalog – find information**
- **Services – get information**
- **Clients – use information**

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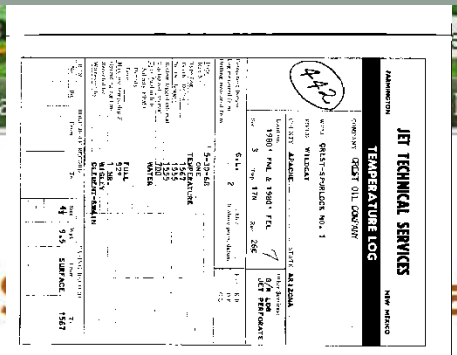

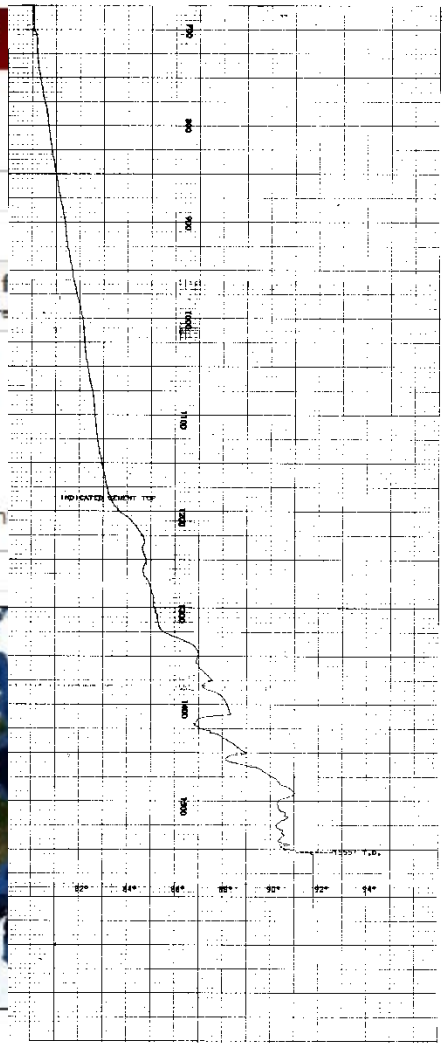

eoportal/catalog/main/home.page

aasggeo... | IN A... | EarthSc... | http...WFS | News an... | USG...

Login Register Help About Feedback

USGIN AA ata Catalog

AASG Association of American State Geologists

USGIN

HOME SEARCH

Search

"temperature log"

Records shown f
Click here to select differe

Additional Options
Clear

WHERE

Anywhere In

Results 1-10 of 142 record(s) 1 2 3 4 5 > Last

Expand results Zoom To Results Zoom To Searched Area

Scanned Temperature Log for Hallett Development 1 State

Scanned Temperature Log for Merrion 1 Navajo-E

Scanned Temperature Log for Arkla Exploration 64 State

Scanned Temperature Log for Crest Oil 1 Spurlock

Tiff image file, scanned with NeuraLog scanner. Originator organization is the name of the company that ran the log where that is available. Includes log run 1. Logged by Jet Technical Services. Formation at TD is Precambrian granite.

Open Preview Details Metadata Zoom To

Scanned Temperature Log for AmeriGas 3 Roach-Baker

Scanned Temperature Log for AmeriGas 3 Roach-Baker

Scanned Temperature Log for AmeriGas 3 Roach-Baker

Scanned Temperature Log for AmeriGas 2 Roach-Baker

Scanned Temperature Log for Phillips Petroleum A1 State

Content Models

- **Active Fault**
- Alteration description
- Aquifer temperature map
- Borehole lithology log
- **Borehole temperature data**
- Crustal Stress data
- Developed geothermal system feature
- **Direct use feature**
- **Drill stem test**
- **Earthquake hypocenter**
- Enhanced geothermal system feature
- **Aqueous chemistry**
- Geologic map
- Geologic Unit geothermal characterization
- Geothermal map
- Gravity data
- Heat flow measurement
- **Hot spring description**
- Isopach map
- **Metadata**
- Permeability
- Production statistics record
- Resource suitability map
- Rock chemistry
- Thermal conductivity measurement
- **Well header**
- **Volcanic vent description**

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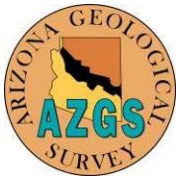
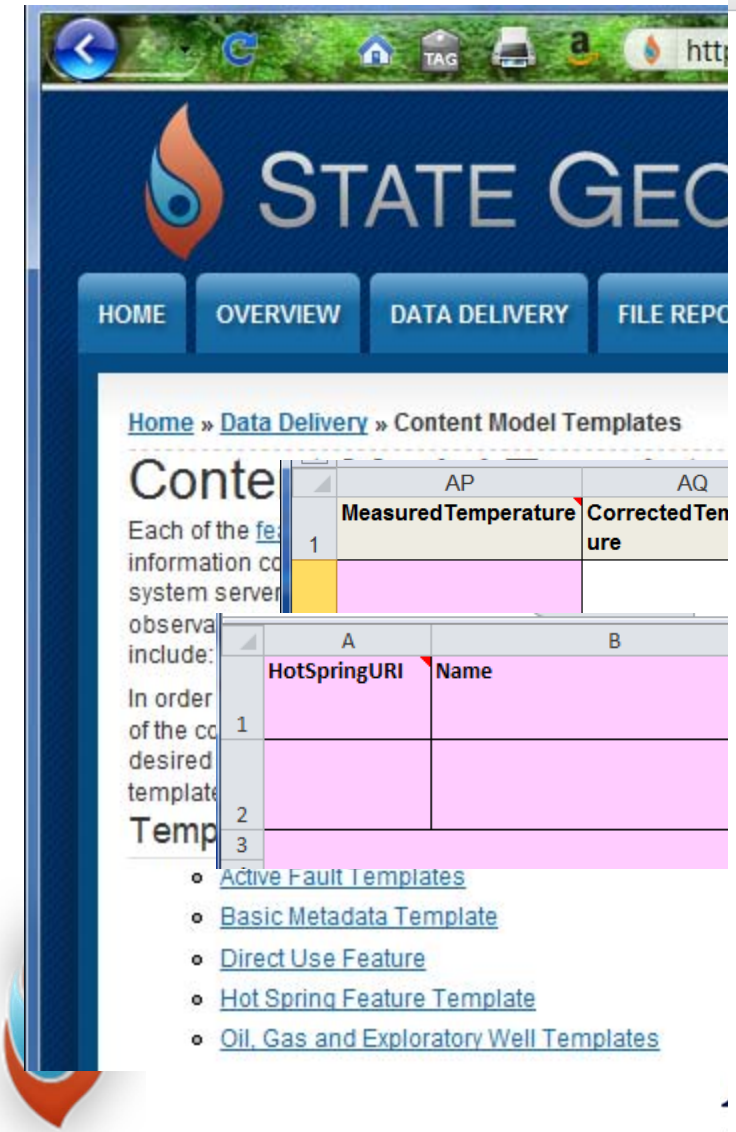


Content Models



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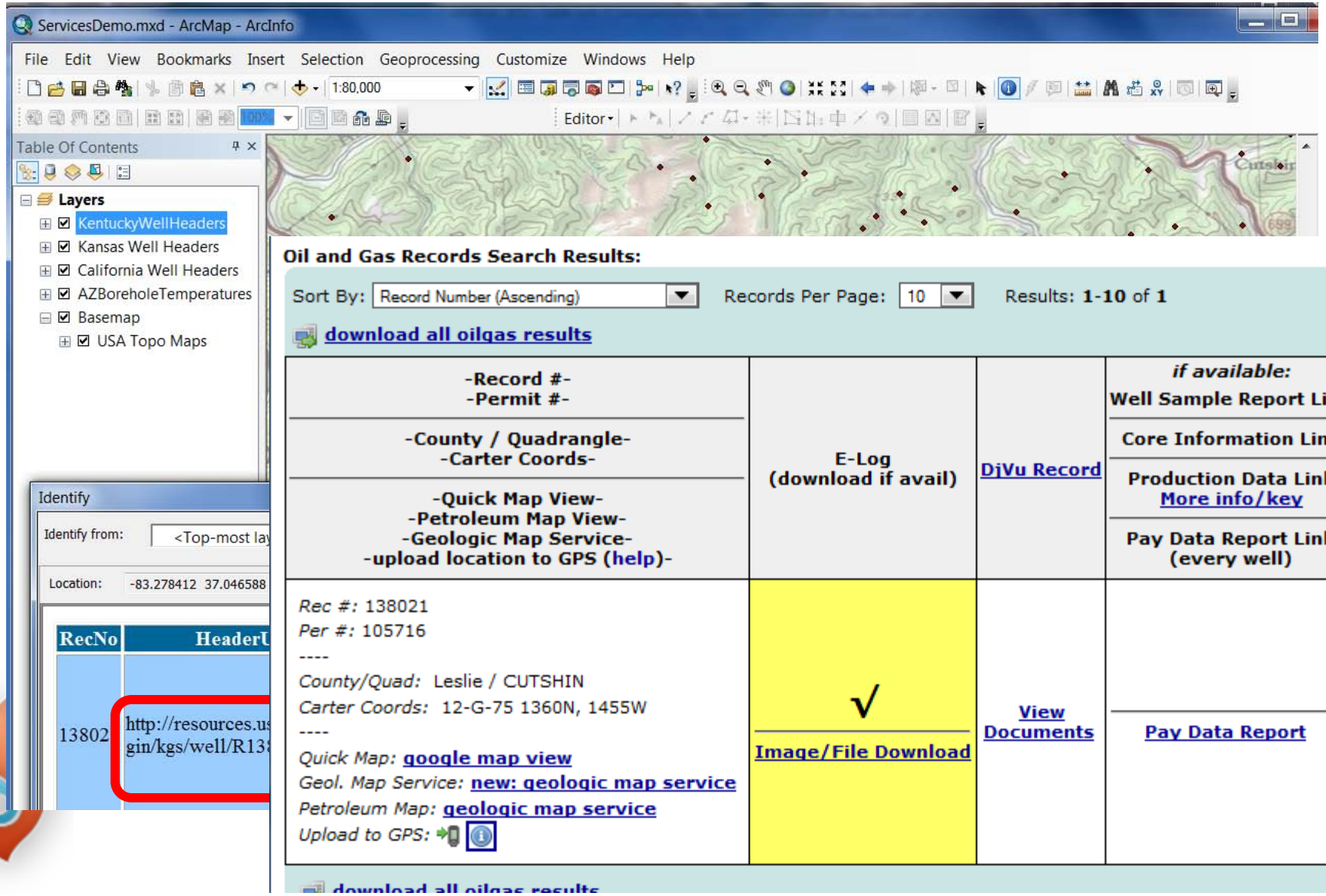
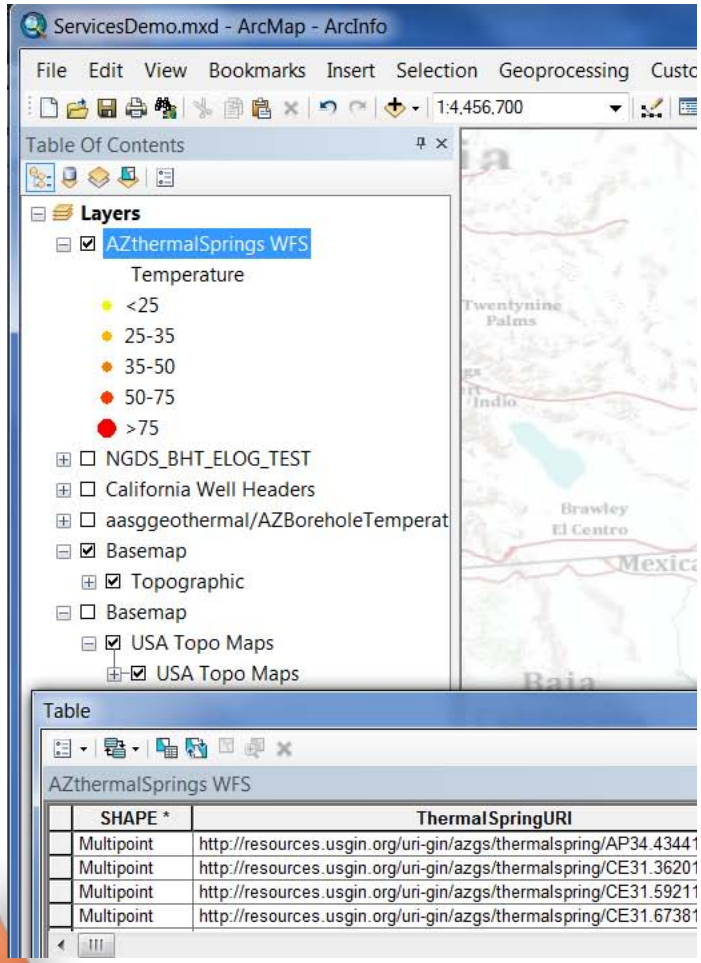
WMS for well headers



WFS example



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Progress

- Subcontracts for data acquisition from 50 states
- Announcement, review and decisions on supplemental funding for new data from 16 states; contracts in negotiation
- Project web site designed, implemented, and maintained (www.stategeothermaldata.org)
- Implementation of catalog (http://catalog.usgin.org/geoportal)
  - Metadata for 20,000+ digital resources (as of 6/10/2011)
- Development of procedure and web tools for tracking data submission review and processing
- Compilation identified and documented 27 draft content models
  - 10 content models developed, reviewed and version 1 posted http://www.stategeothermaldata.org/data-delivery/content-models/
- First 20 WFS and WMS services online
  - See http://services.azgs.az.gov/ArcGIS/rest/services/aasggeothermal or catalog (http://catalog.usgin.org/geoportal, search WMS)

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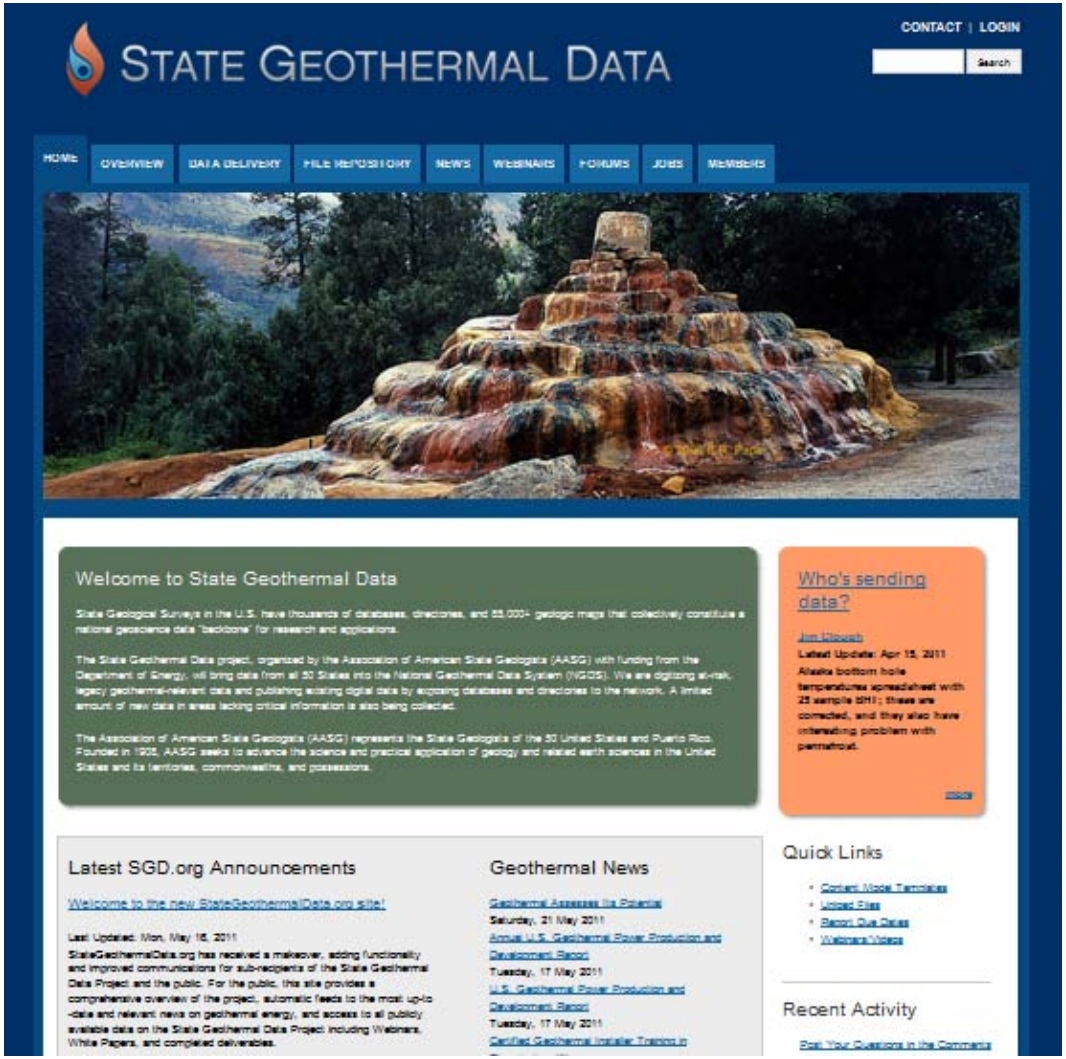
Web site

- Overview
- Announcements
- Jobs
- Webinars
- Content Models
- Member Site
  - Reporting
  - Repository
  - Newsletter
  - Upcoming Dates



www.stategeothermaldata.org

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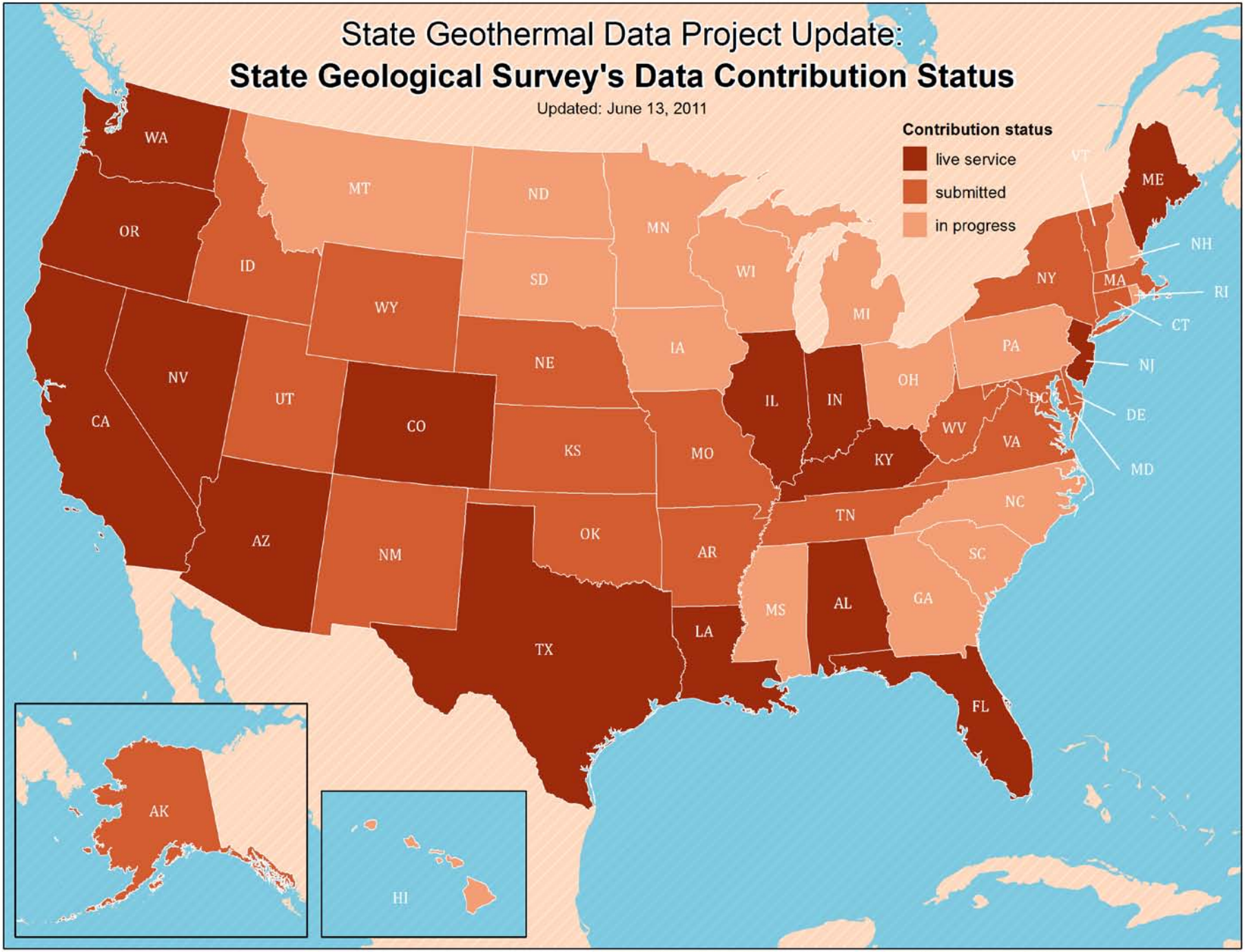
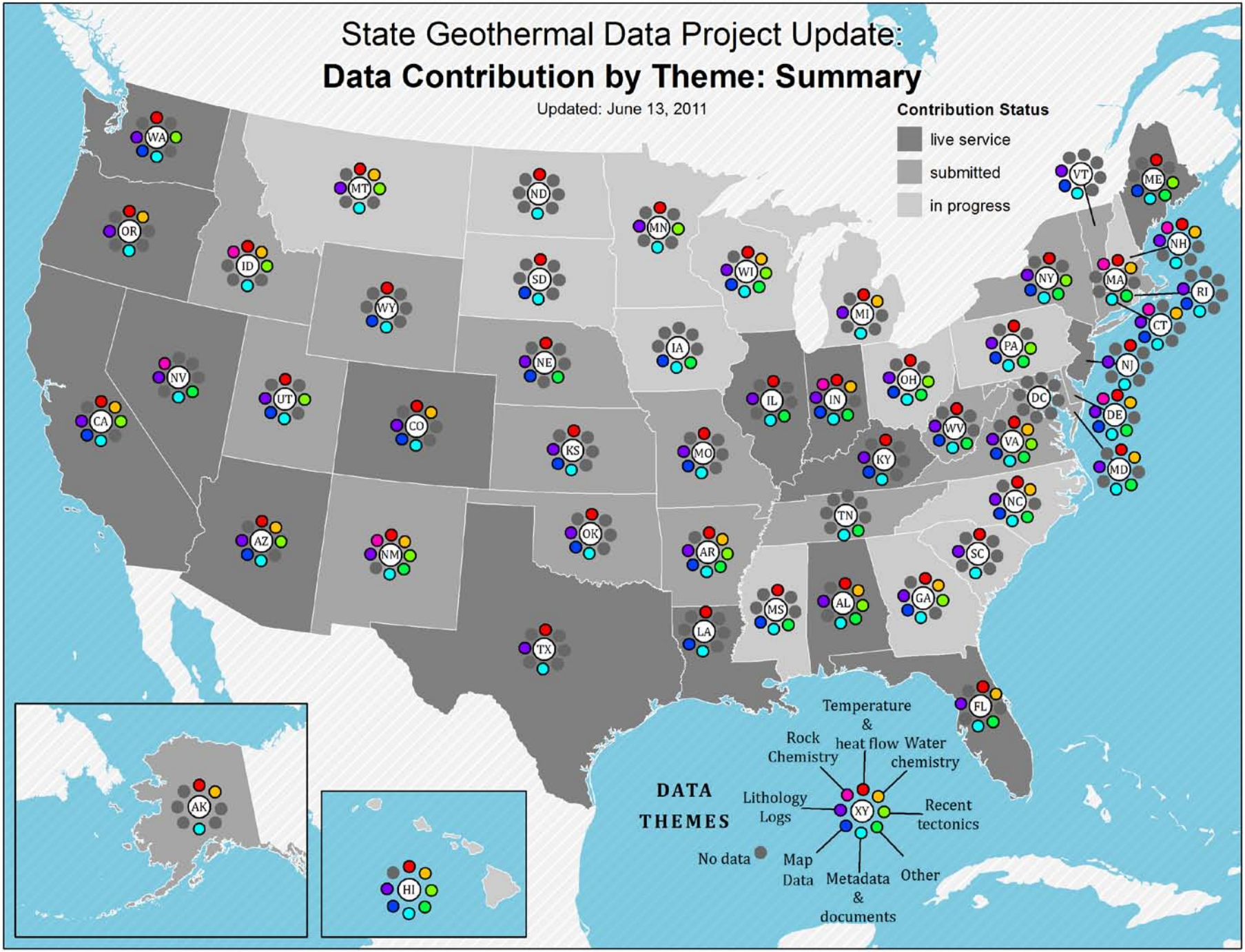


Project sponsored by the U.S. Department of Energy under award DE-EE0002850 to the Arizona Geological Survey acting on behalf of the Association of American State Geologists. Cartography by JCD.



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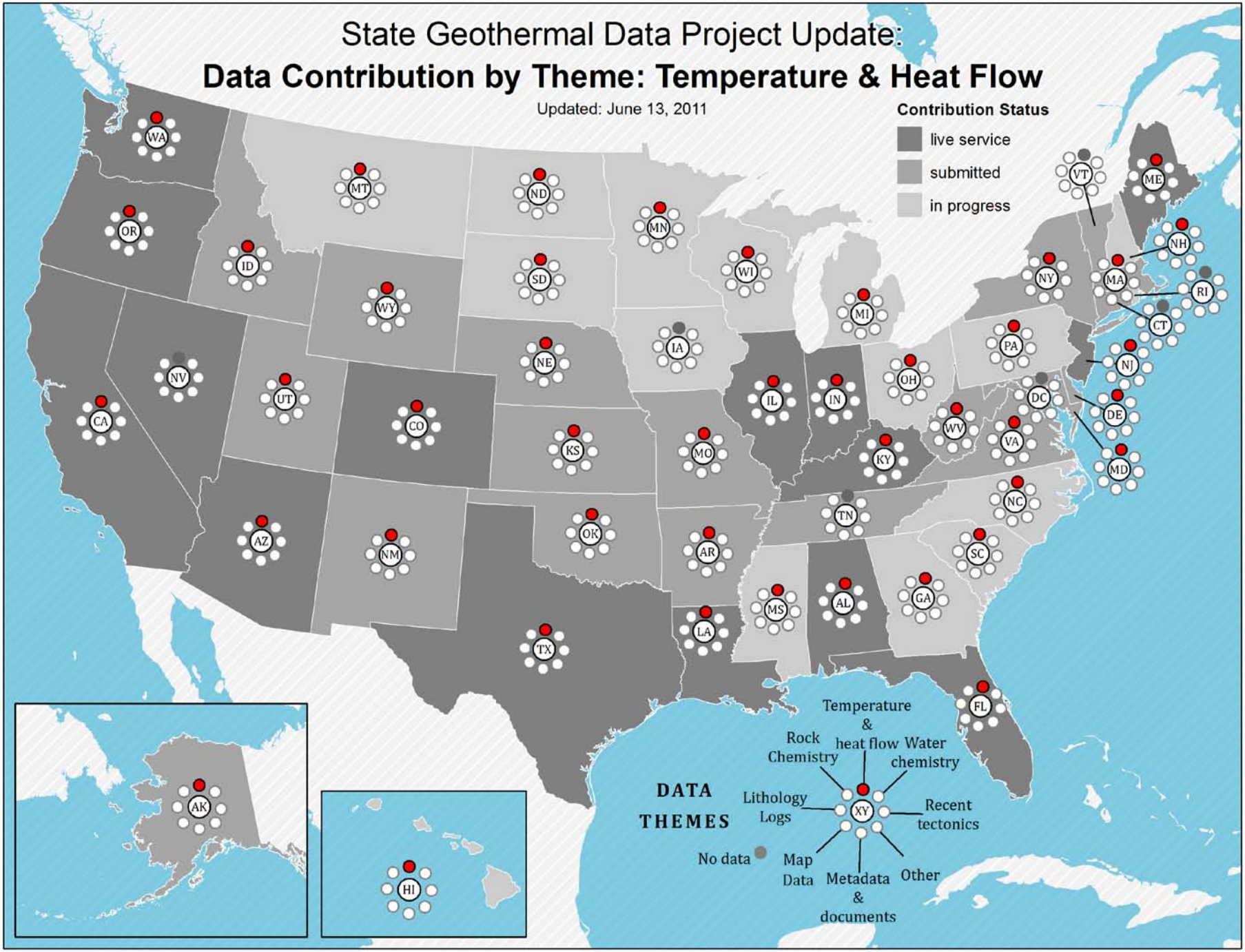

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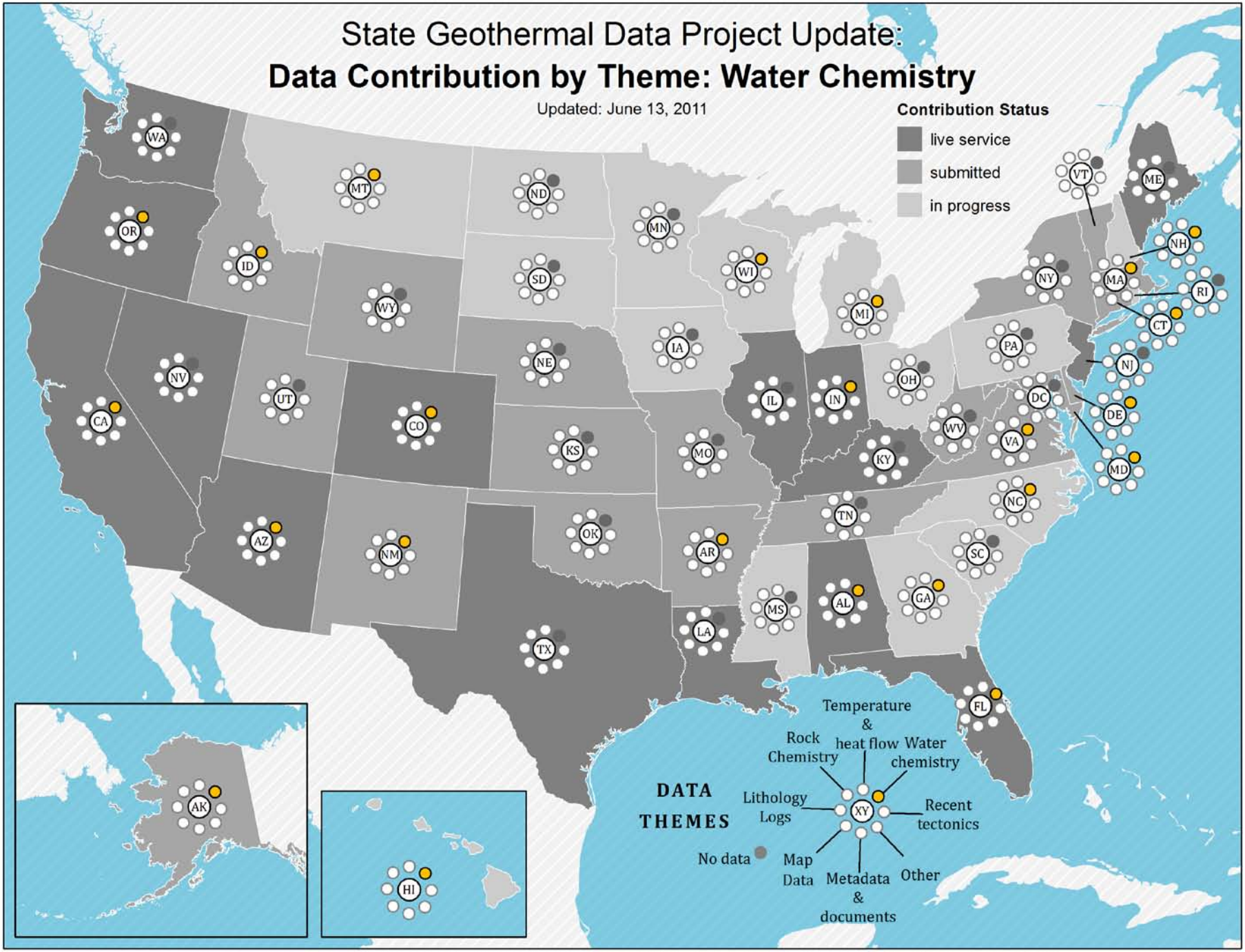

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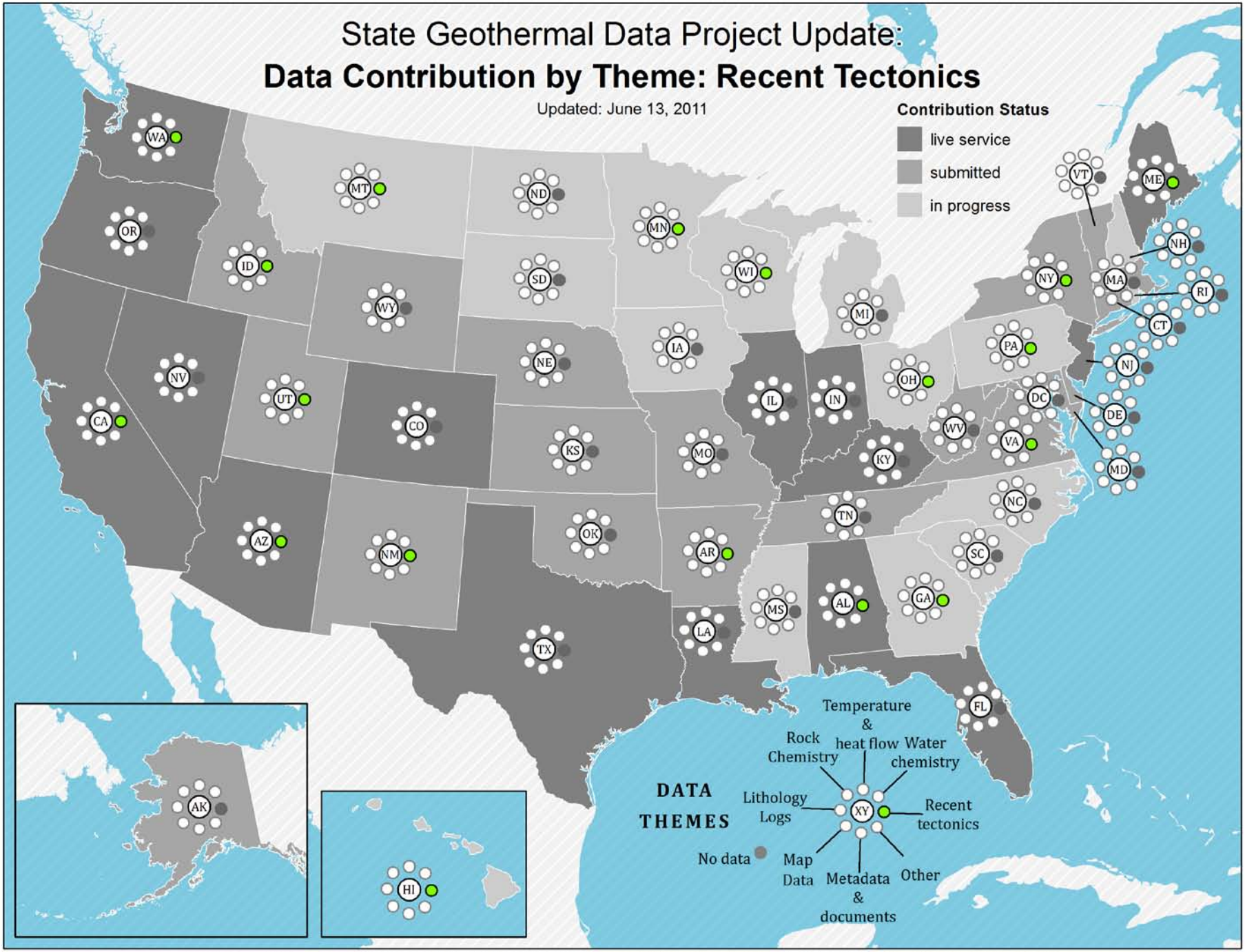

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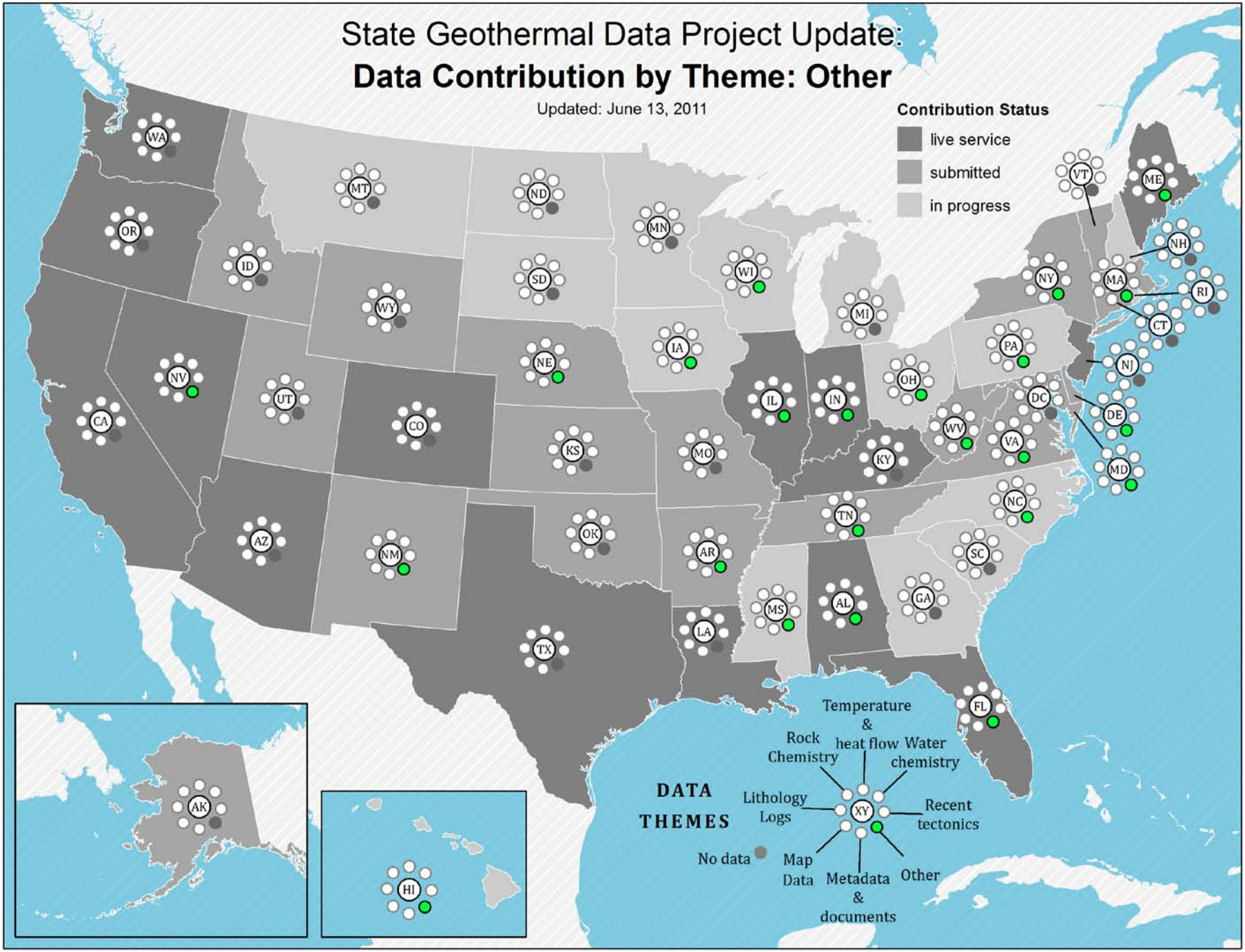

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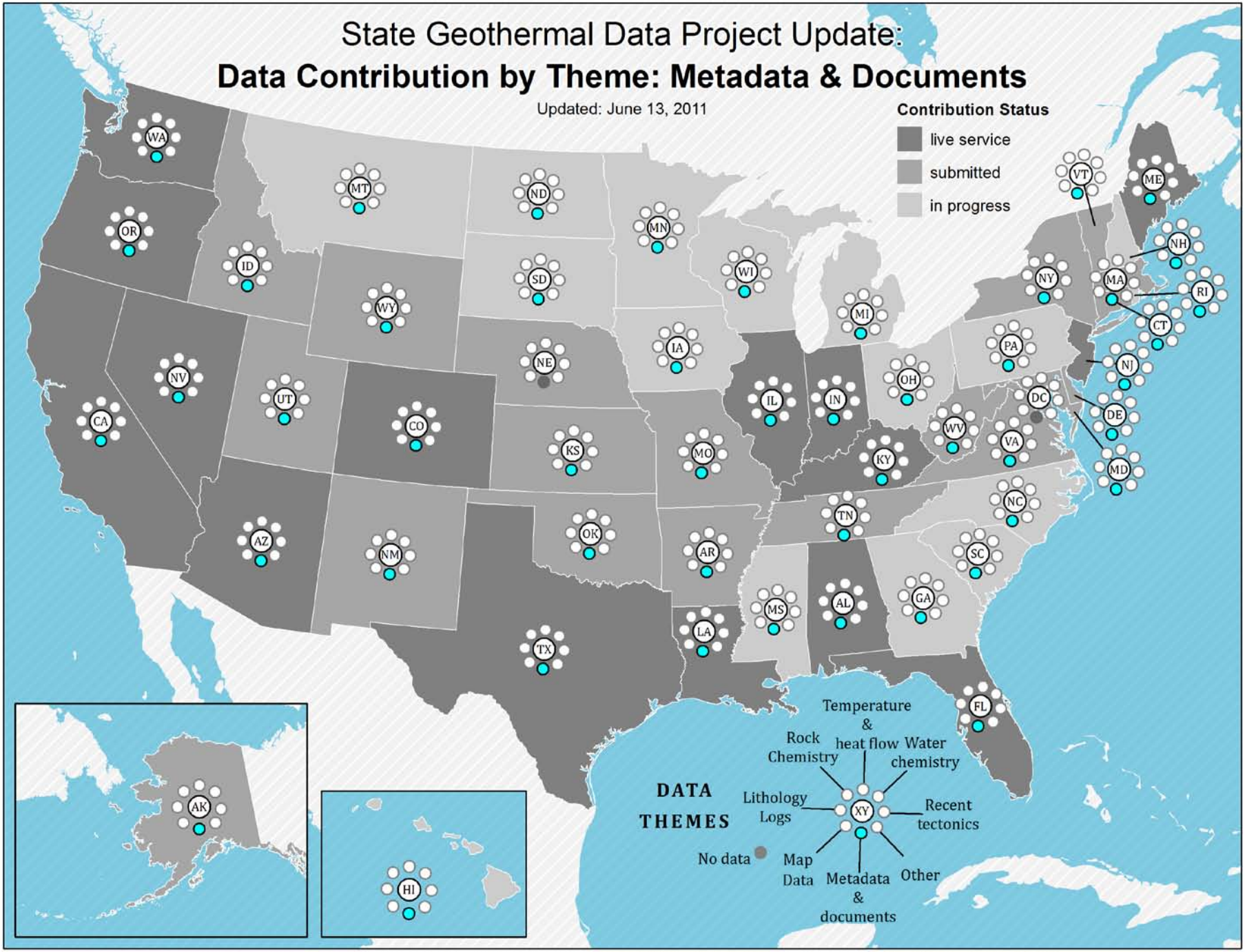

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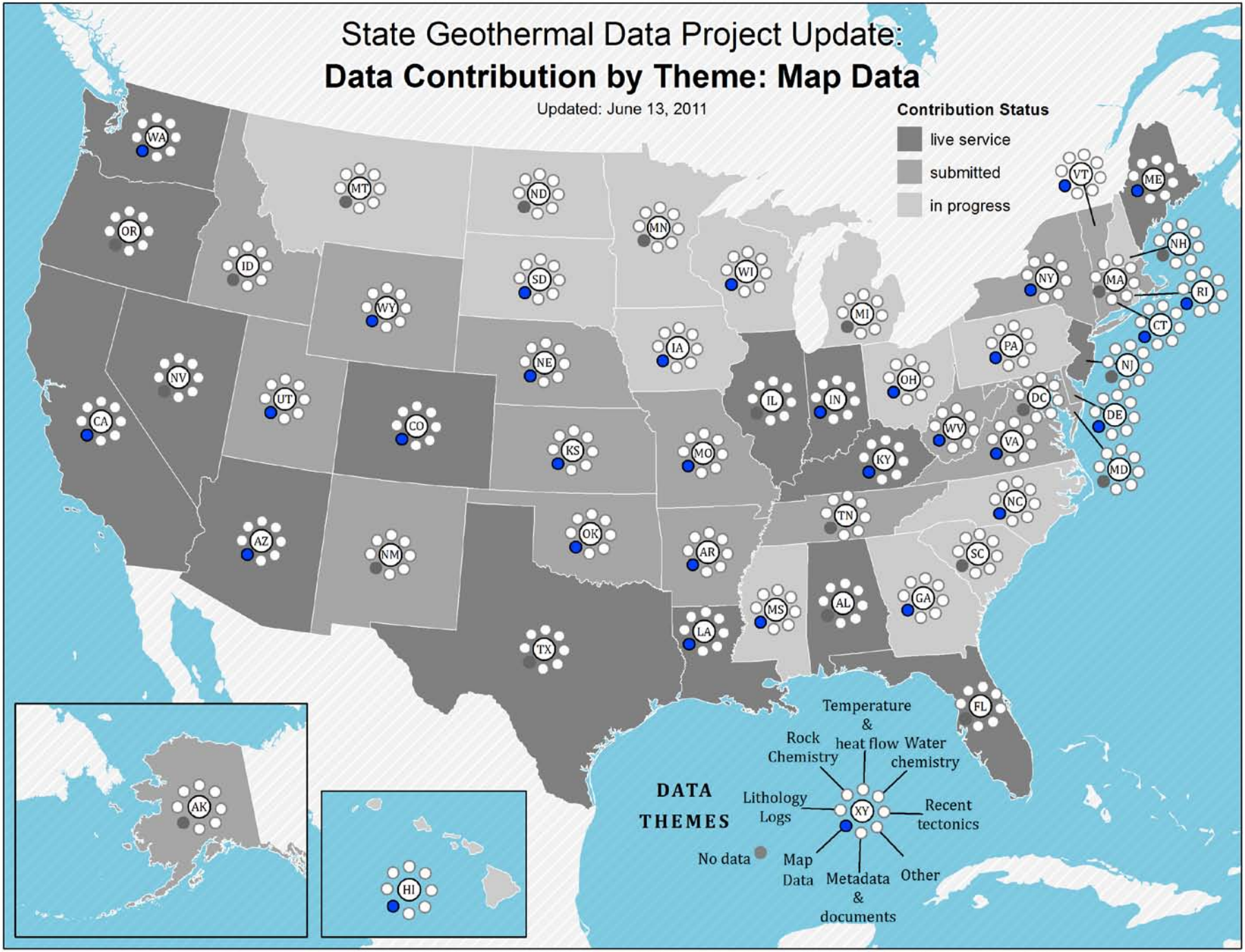

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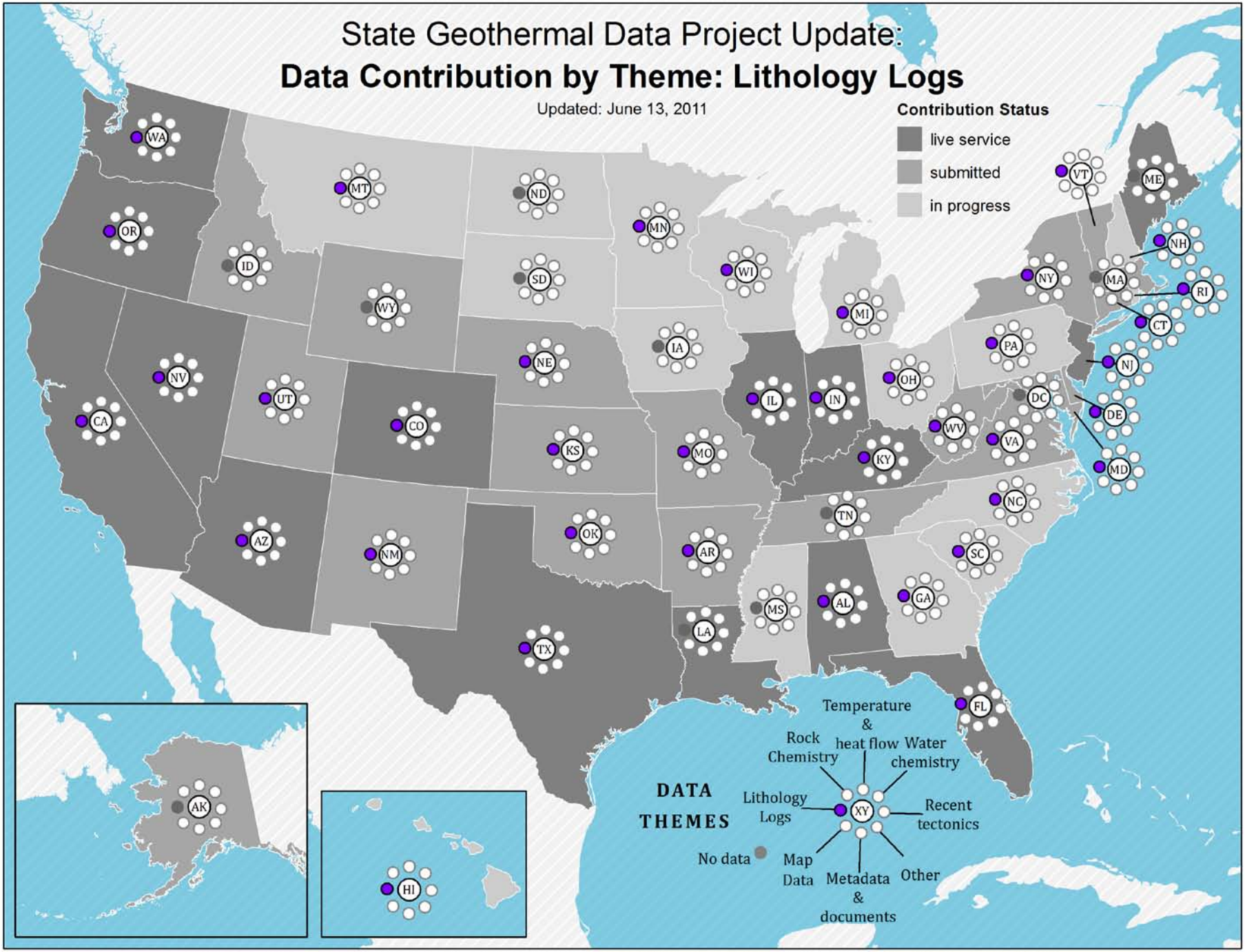

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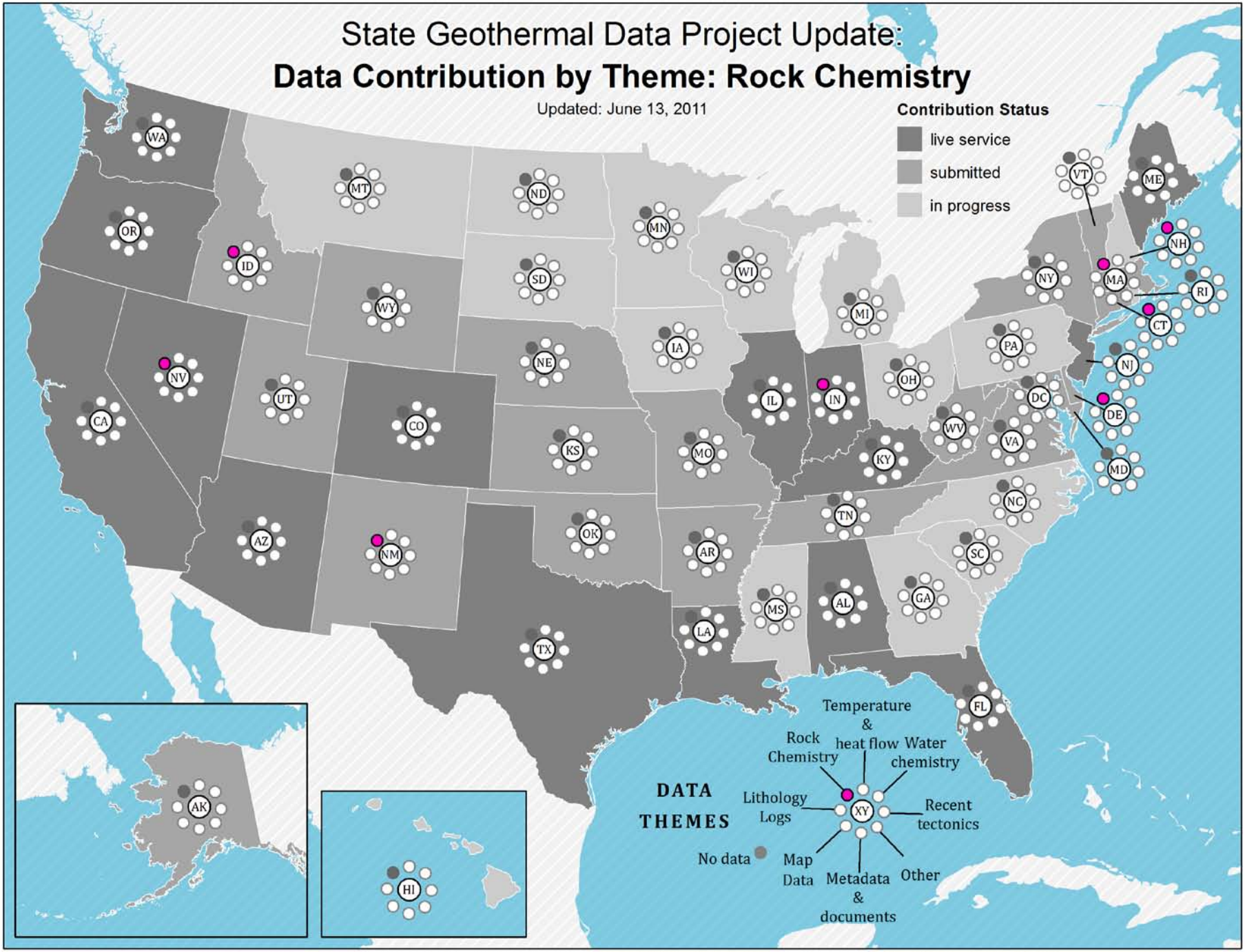

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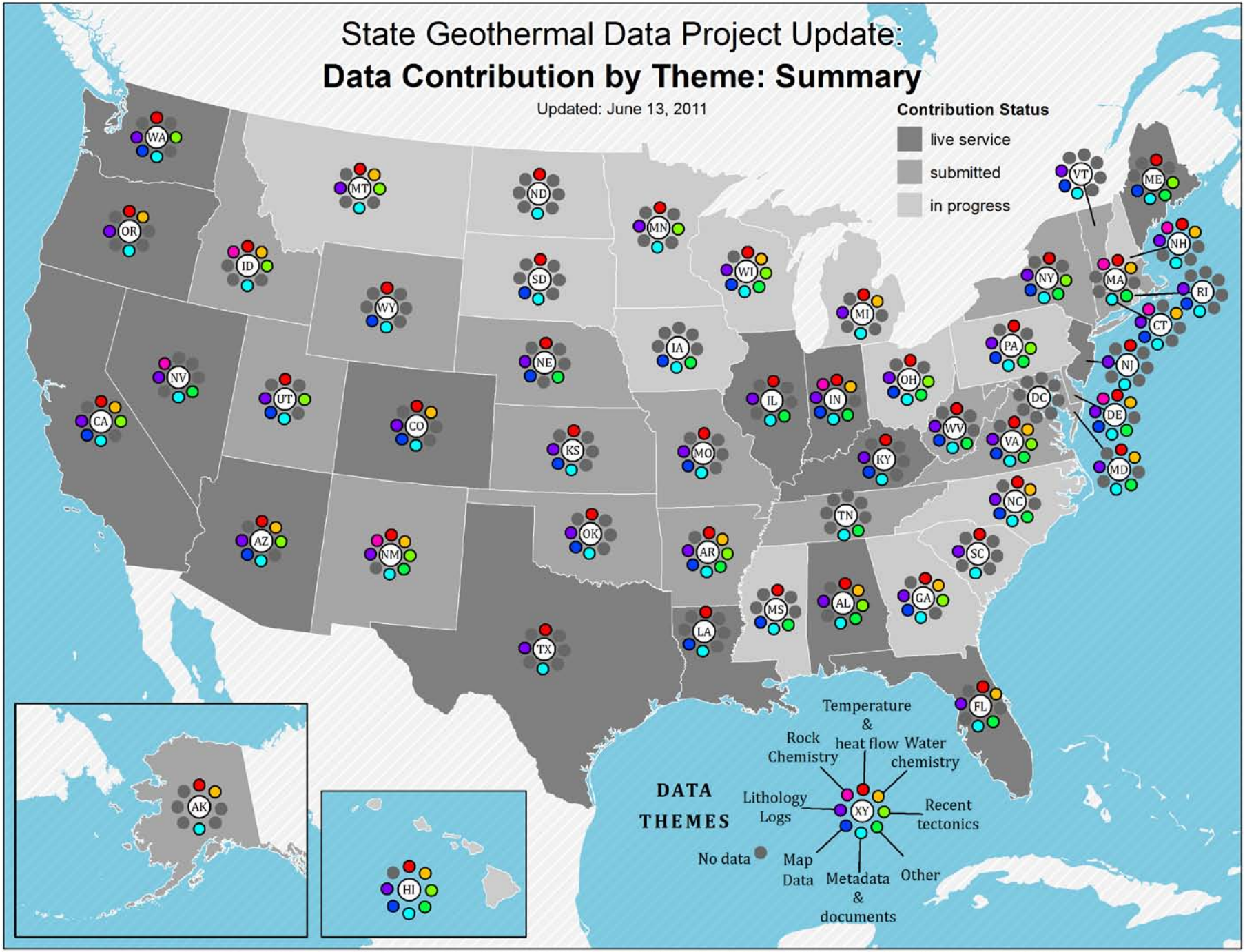

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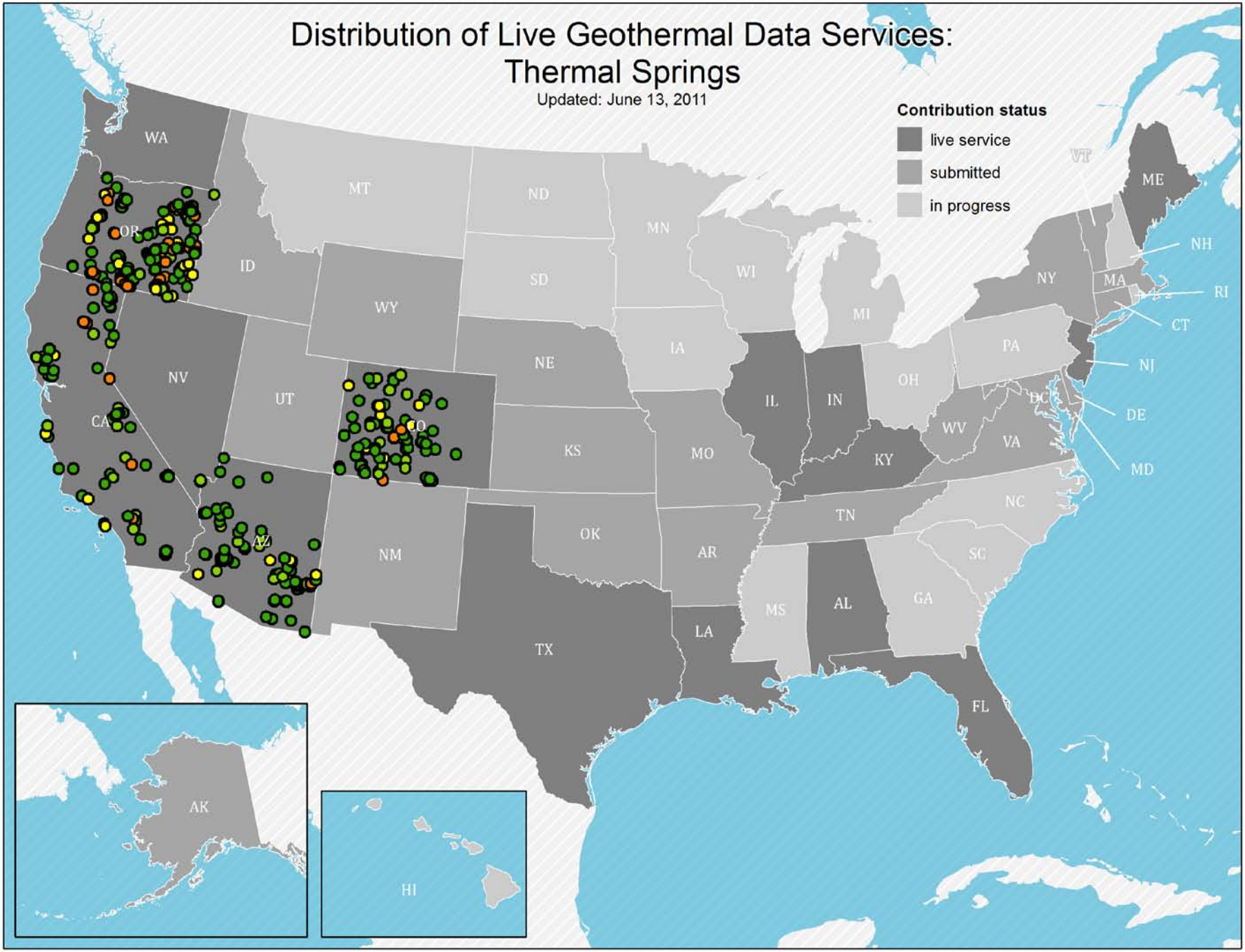

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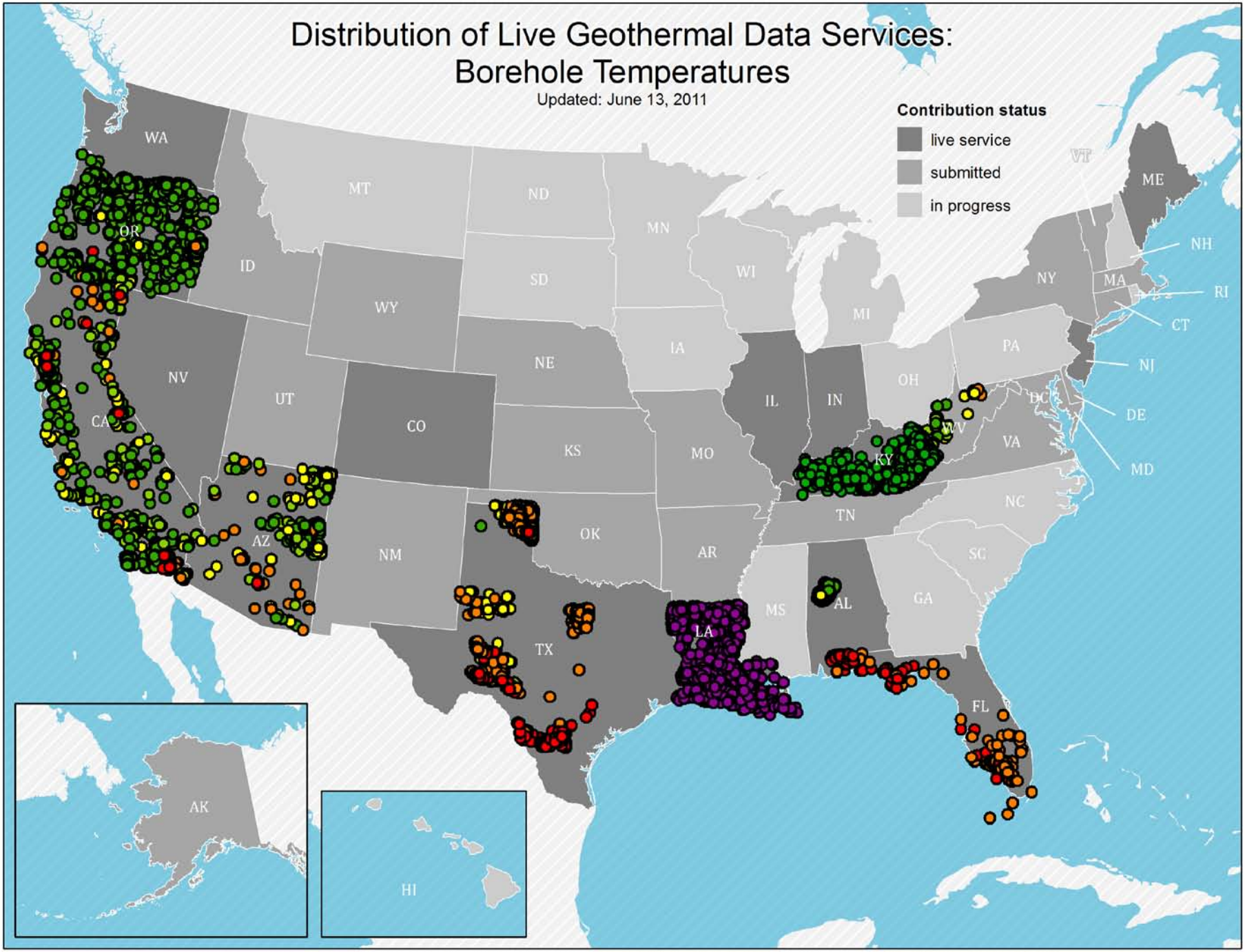

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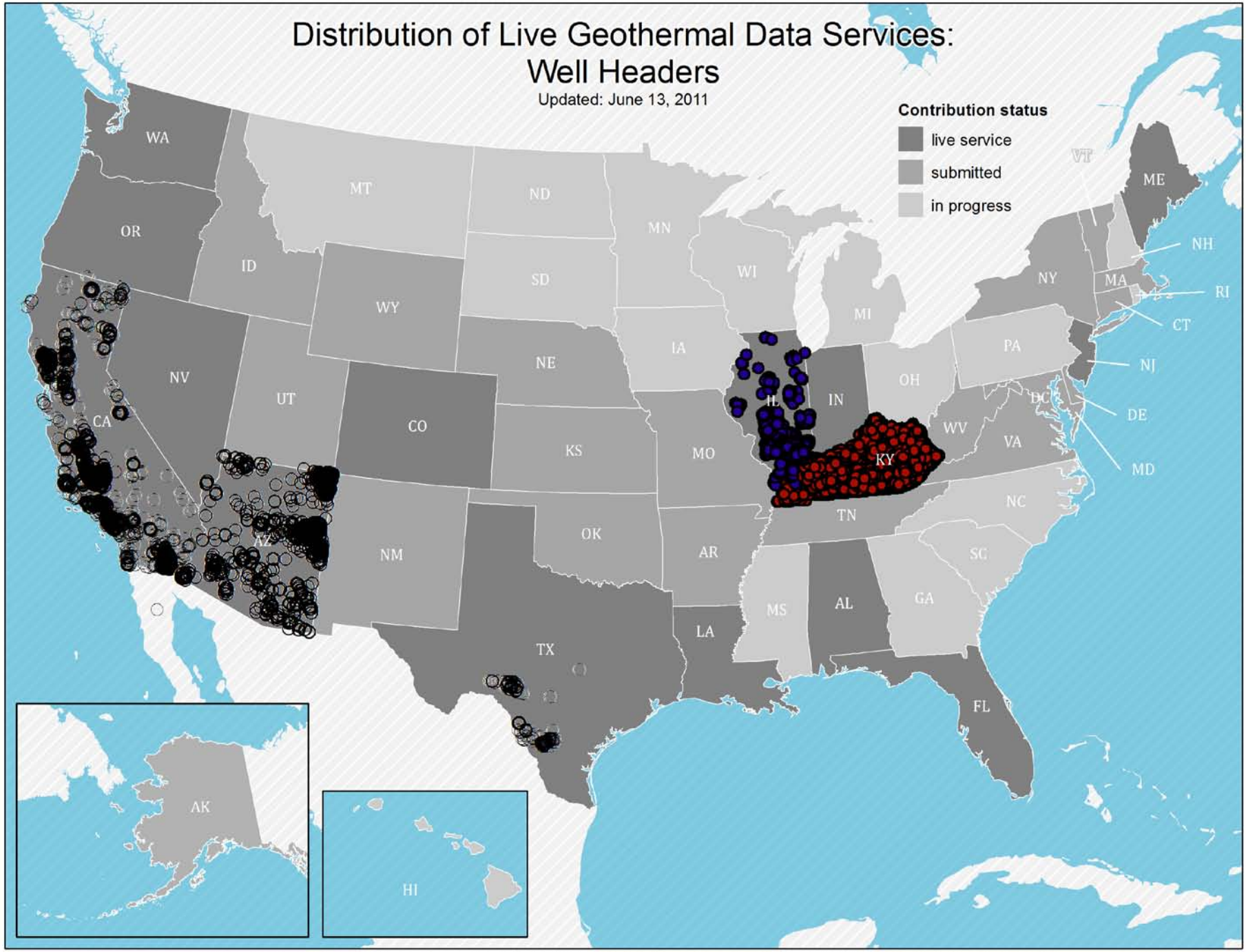

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Future Direction 2011-2012

- All regional hubs operational
- All states providing data live to the network
- All submitted data described by metadata in catalog system
- Training programs developed & implemented: webinars, videos, guidebooks, online tutorials, short courses
- SAB review of YR-1; evaluate and approve YR-2
- Carry out bulk of new data acquisition, including drilling a minimum of 21 gradient and research holes in 6 states
- Prototype deployment of the system roll out summer 2011

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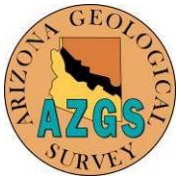

Summary

- Deployment of national distributed network in progress
- Data compilation from all 50 states
- Main system components in place –
  - *Find*: Catalogs – profiles, protocols, document repository
  - *Get*: Services – protocols, interchange formats, servers
  - *Use*: Clients – adopting existing software for desktop applications
- Leveraging additional data and apps from state & federal agencies, academia, and industry
- System adoption exceeds expectations and our ability to meet demands from third parties

U.S. DEPARTMENT OF ENERGY

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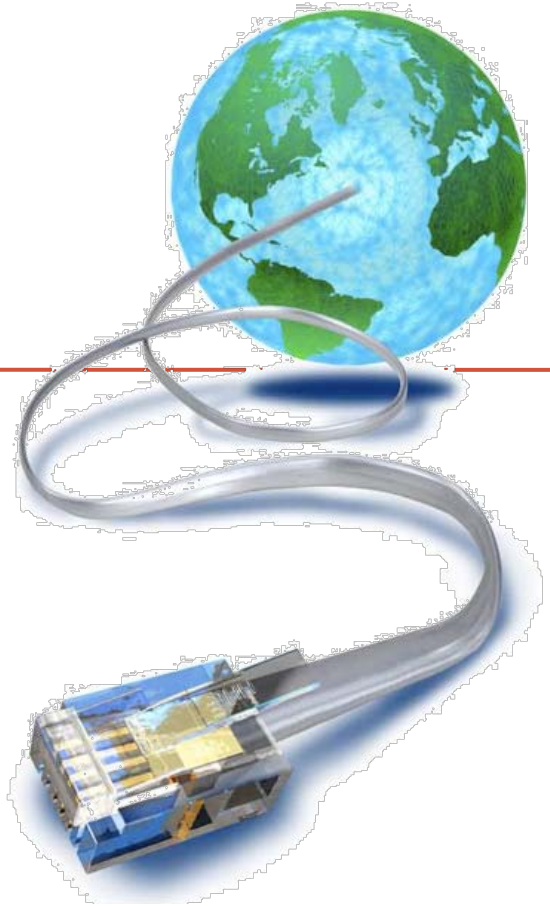
Towards a Global Data Network

CUAHSI HIS
Sharing hydrologic data

NGDS
National Geothermal Data System

OOI
OCEAN OBSERVATORIES INITIATIVE



ONE Geology

energistics
The Energy Standards Resource Centre

WRP
WESTERN REGIONAL PARTNERSHIP

DataONE

USGS
science for a changing world

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ARIZONA GEOLOGICAL SURVEY
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