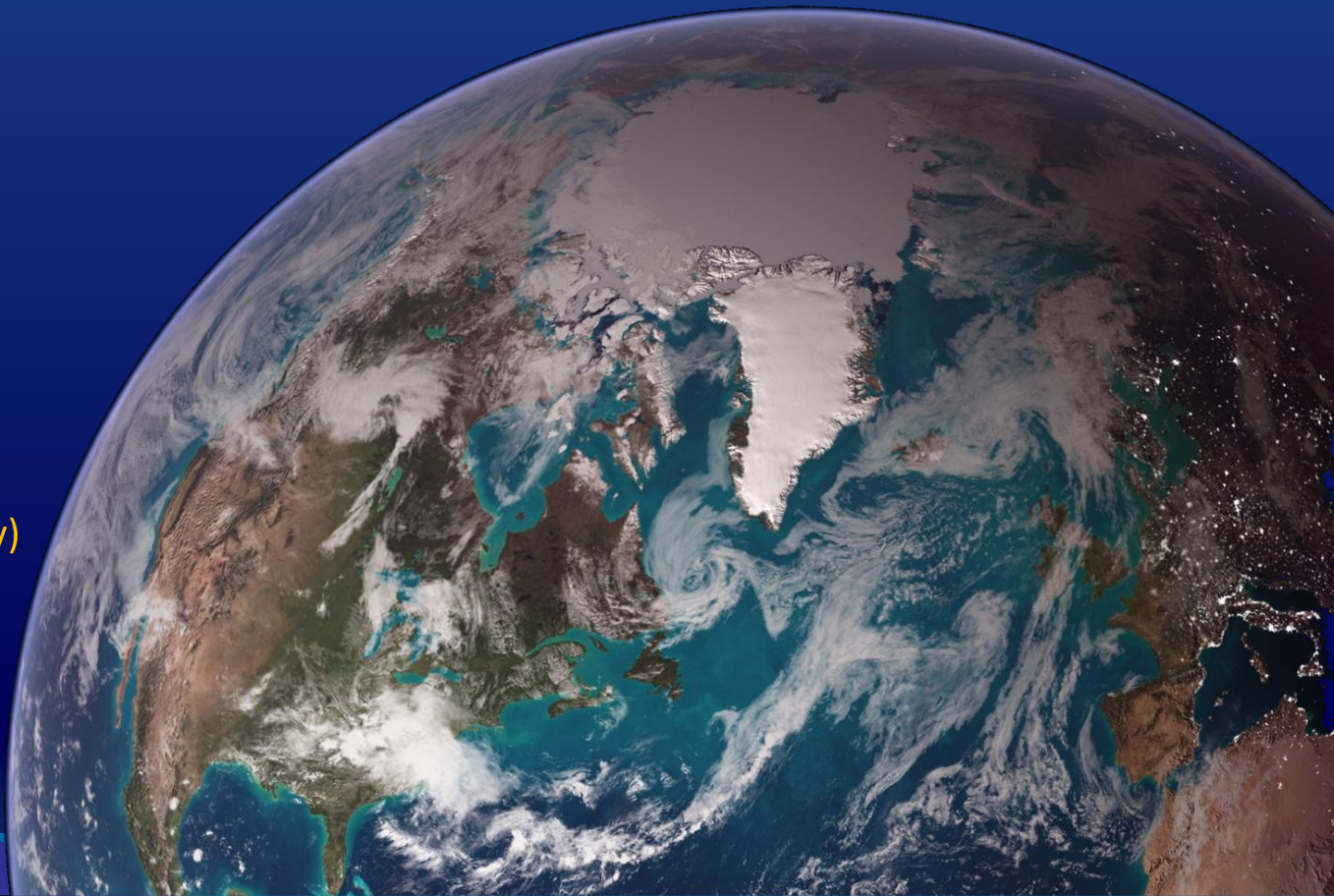
Supporting Private Sector Decision-Making with NOAA's Interim Climate Data Records (ICDRs)



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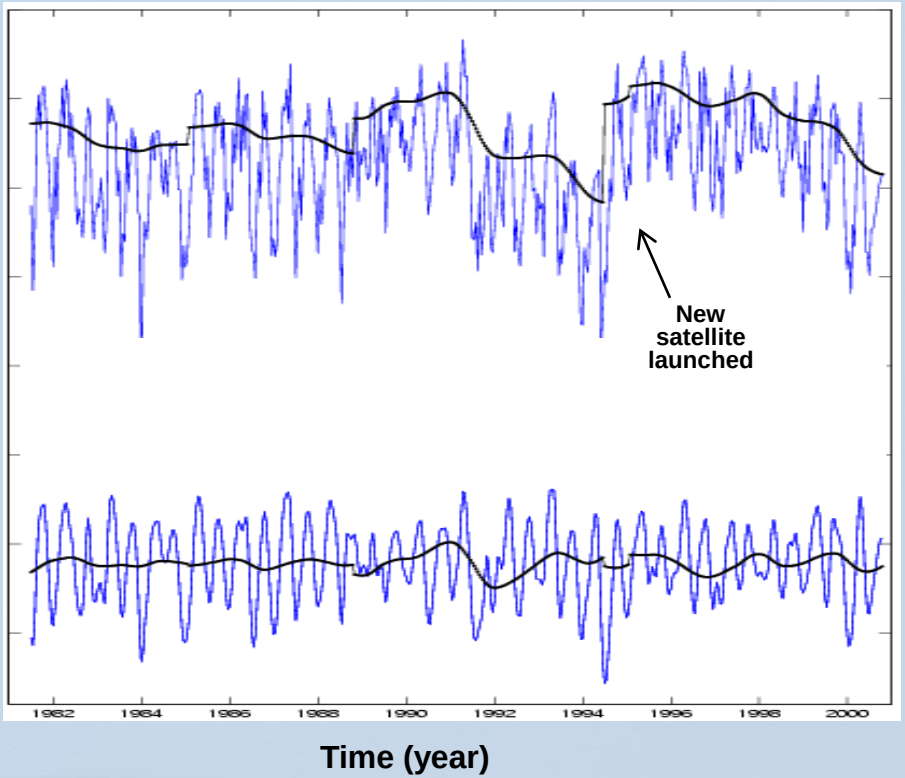
The Academy View

- The National Research Council (NRC, 2004) defines a CDR as a time series of measurements of sufficient length, consistency, and continuity to determine climate variability and change.

A CDR Provides Consistency & Continuity

Homogenization reduces artifacts imparted by observing systems, facilitating meaningful comparisons in space and time



← **Operational weather and hazard products** are produced rapidly to potentially save life and property

← **Climate Data Records (CDRs)** provide long term product consistency through rigorous reprocessing with advanced algorithms, ancillary data and evolved instrument understanding.

CDRs Can Support Decision Makers
Hypothetical problems for climate data and information

- *Climate Information Responding to User Needs (CIRUN)* Roundtable Q&A*
  - Can we get consistent data series on average and extreme events (e.g., that disrupt business operations) so that current trends in climate can be established? [Want] to inter-comparison locations (state, city) and changes … through time.
- Energy Utilities
  - What is the closest historical analog (duration, extent, severity) to the this year's hot spell?
- Local Governments and Planners
  - Are city and county water sources (wells, reservoirs) stable given climate change?
- International Shipping
  - Can transport companies get a competitive advantage by investing now in ships for routes through the Northwest Passage?
- Agribusiness
  - How could a company adjust its portfolio of producers, transporters and foreign investment due to climate?

- Not hypothetical – received from constituent. See: http://www.climateneeds.umd.edu

The Academy View

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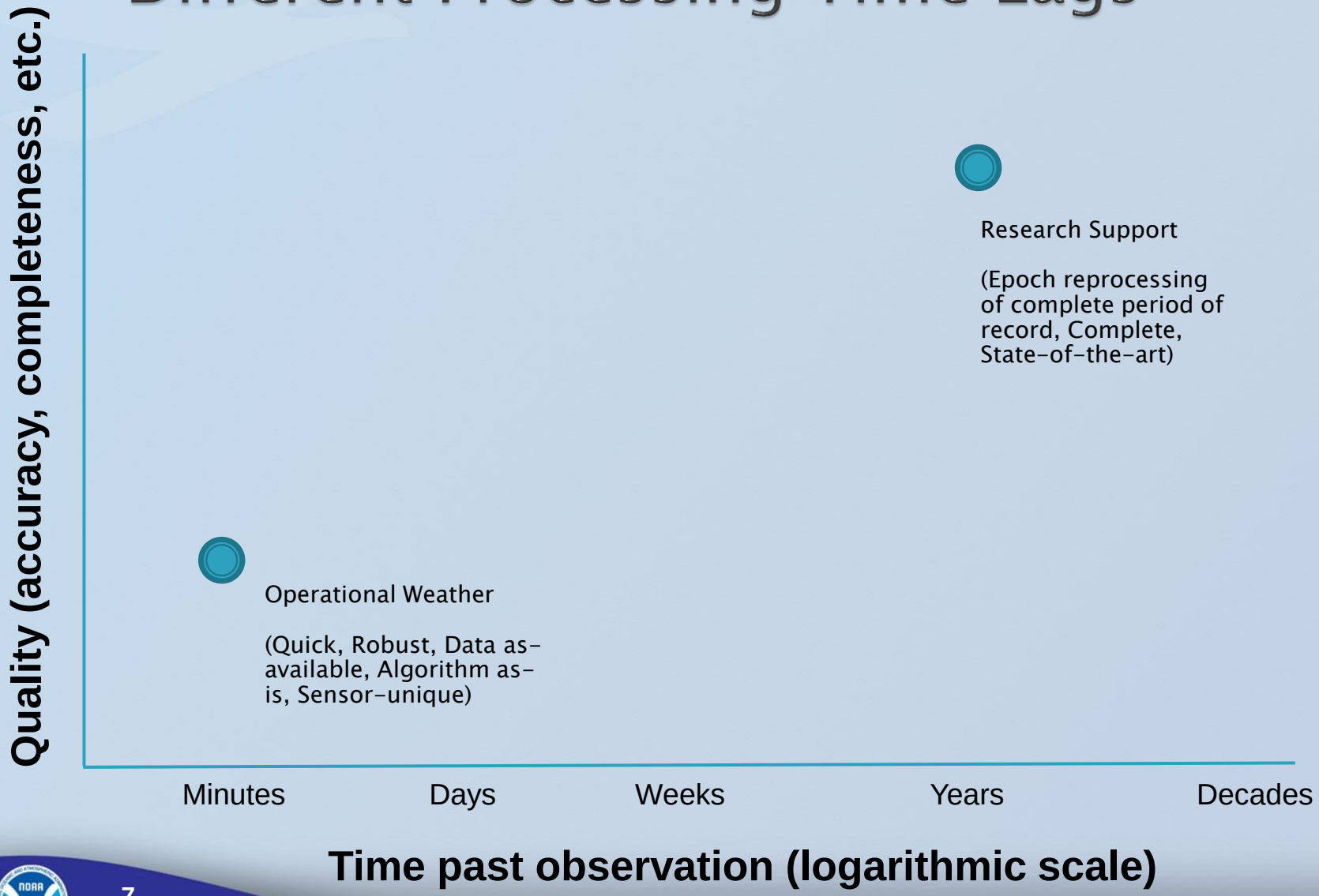
The Academy and the Private Sector

- The National Research Council (NRC, 2004) defines a CDR as a time series of measurements of sufficient length, consistency, and continuity to determine climate variability and change.

Either/Or ? Both? Same?

- The CDR Program provides proven satellite-derived climate data and information records – including data sets, source codes and documentation – to allow decision-makers, policy-makers and scientists throughout society to make informed decisions and analyses involving future weather and climate.

Different User Needs Require Different Processing Time Lags



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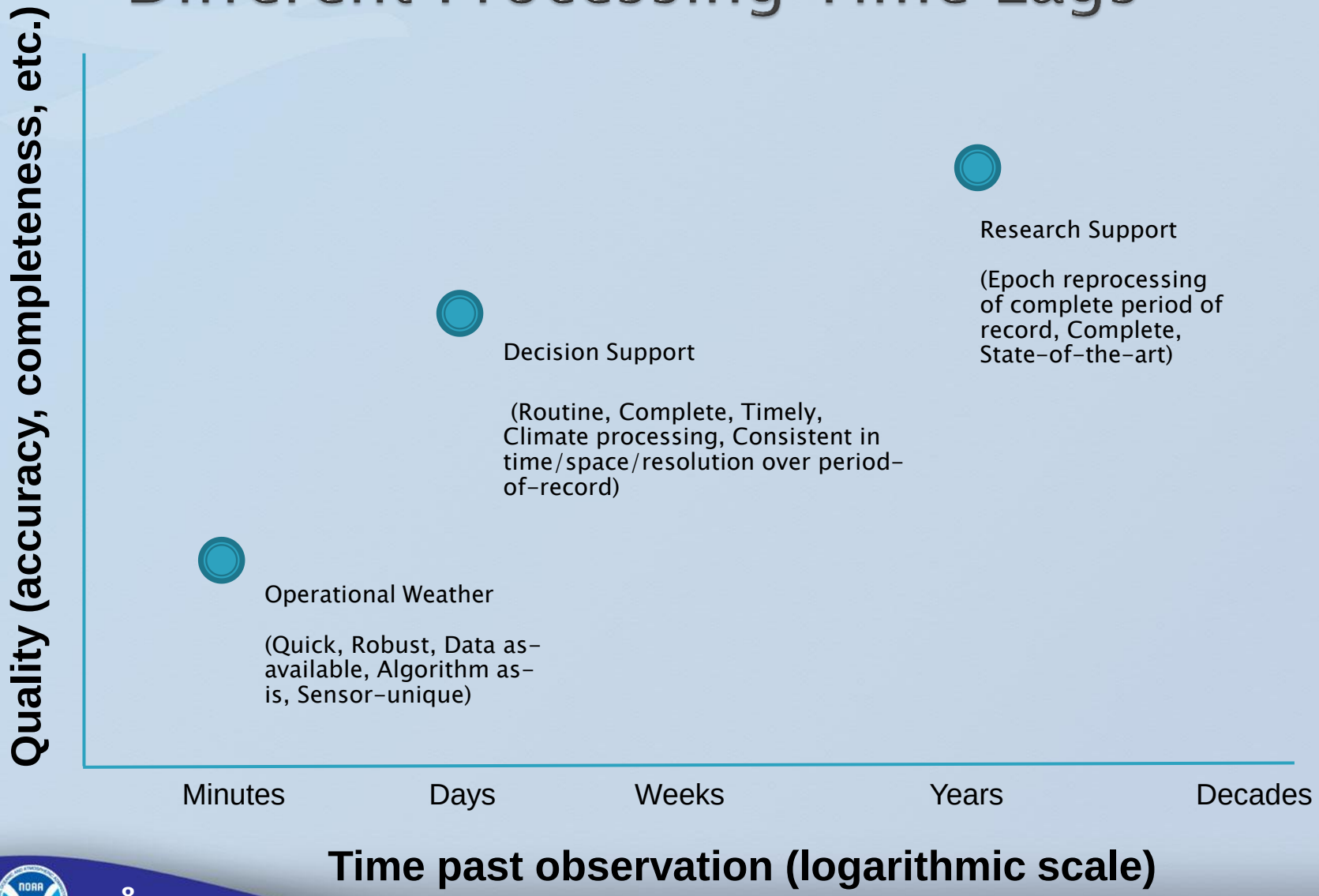

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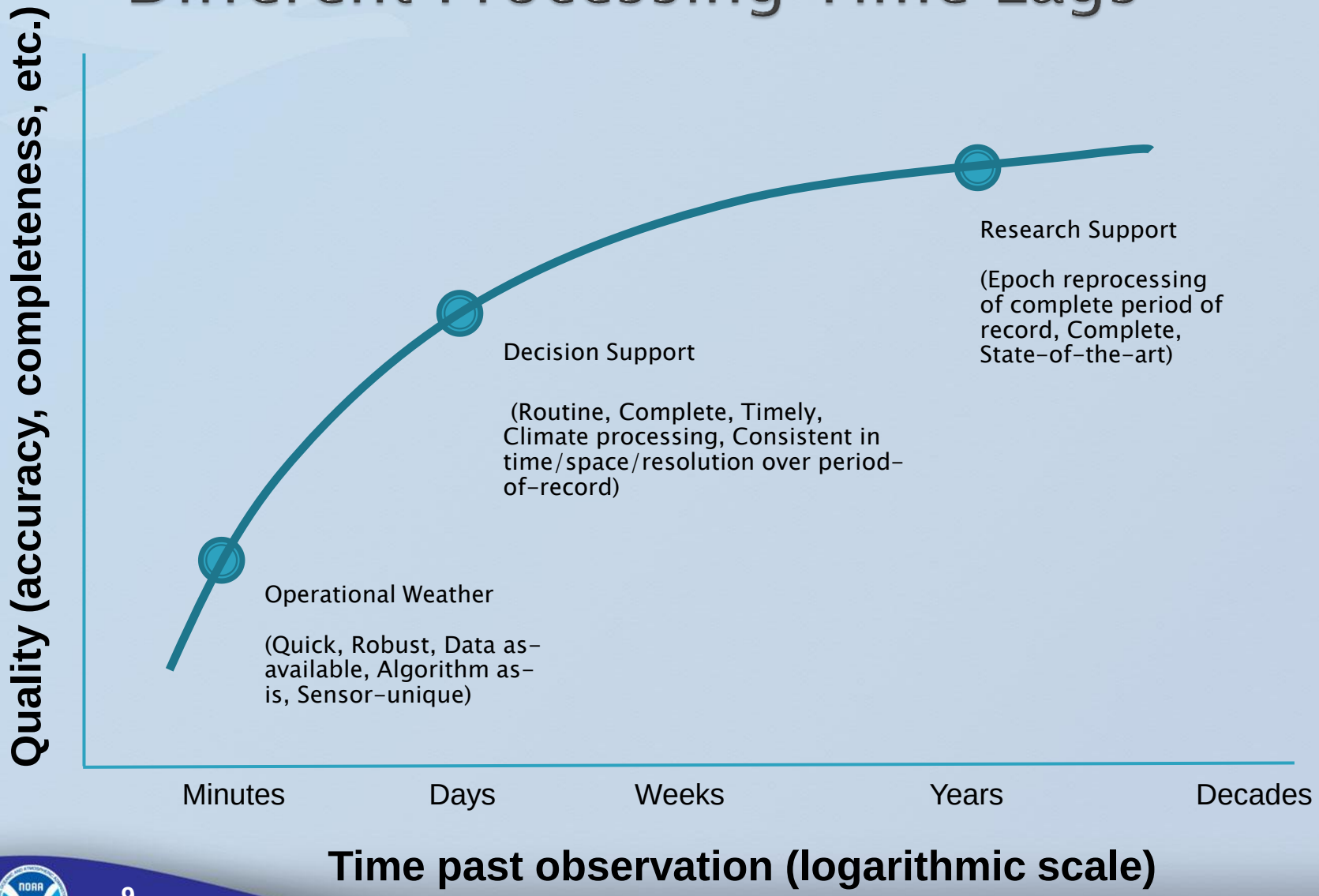
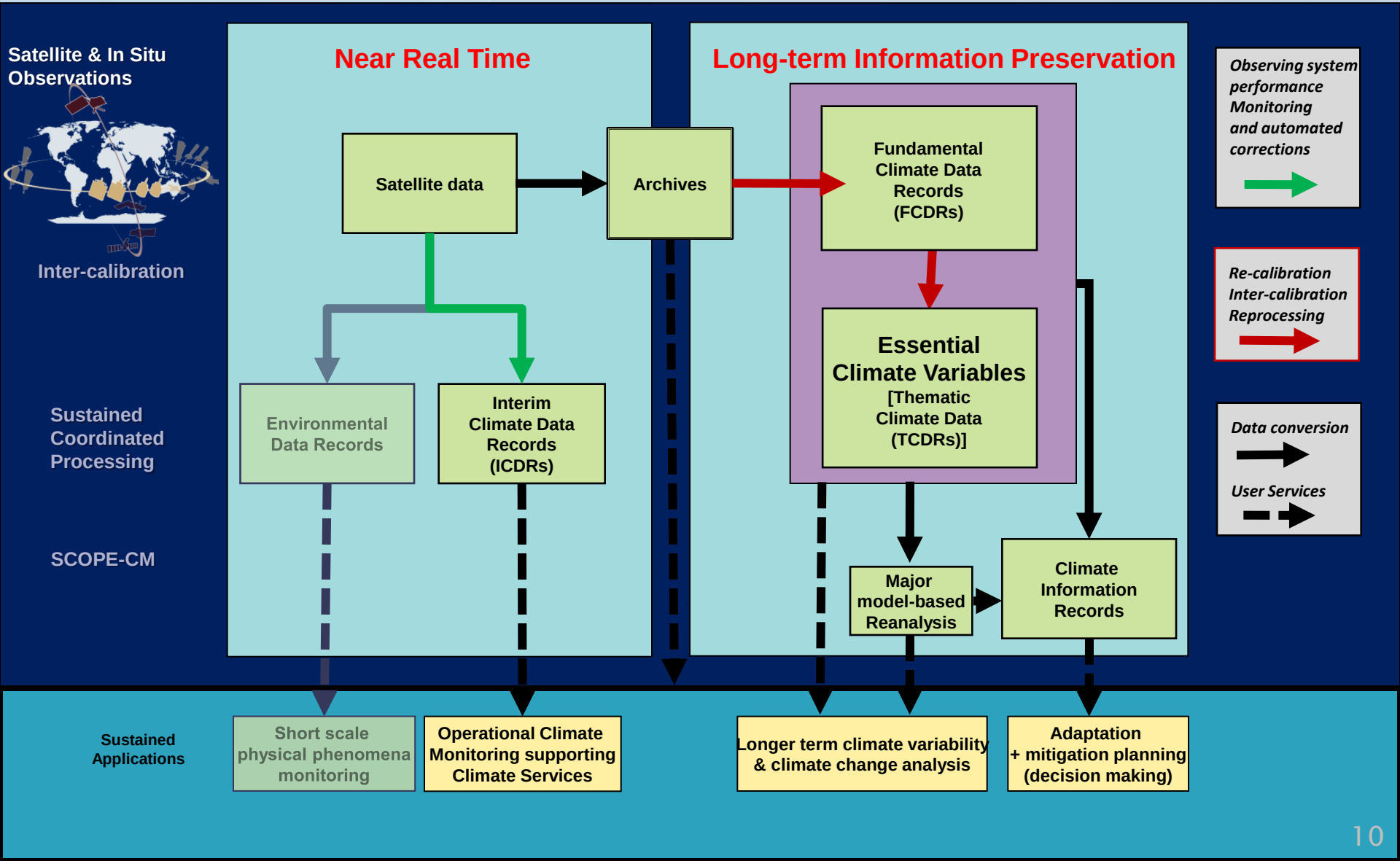


Sustained Climate Information Flow
Emerging International Architecture



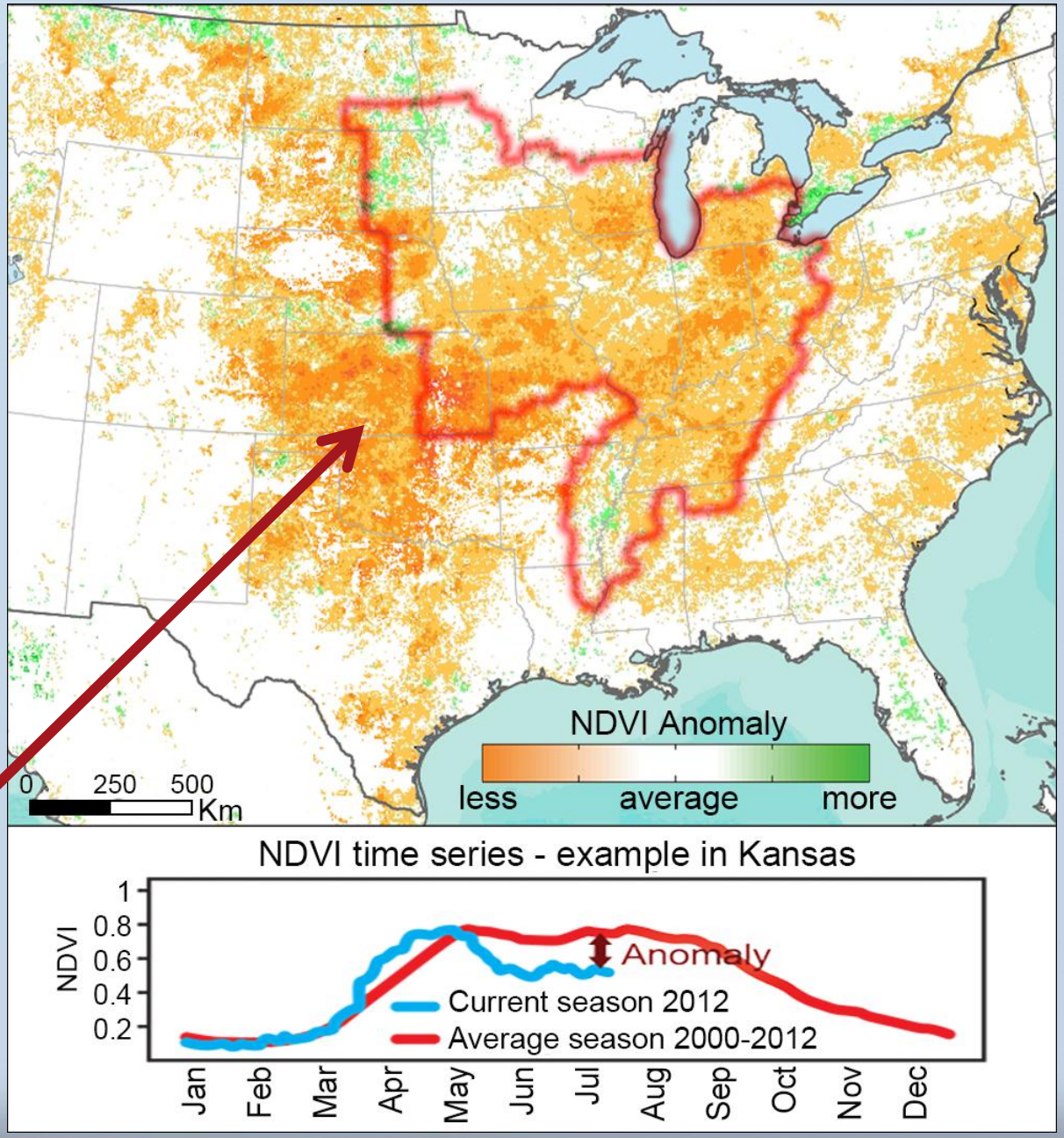
CDRs Supporting Farming and Agribusiness

Example: historical context

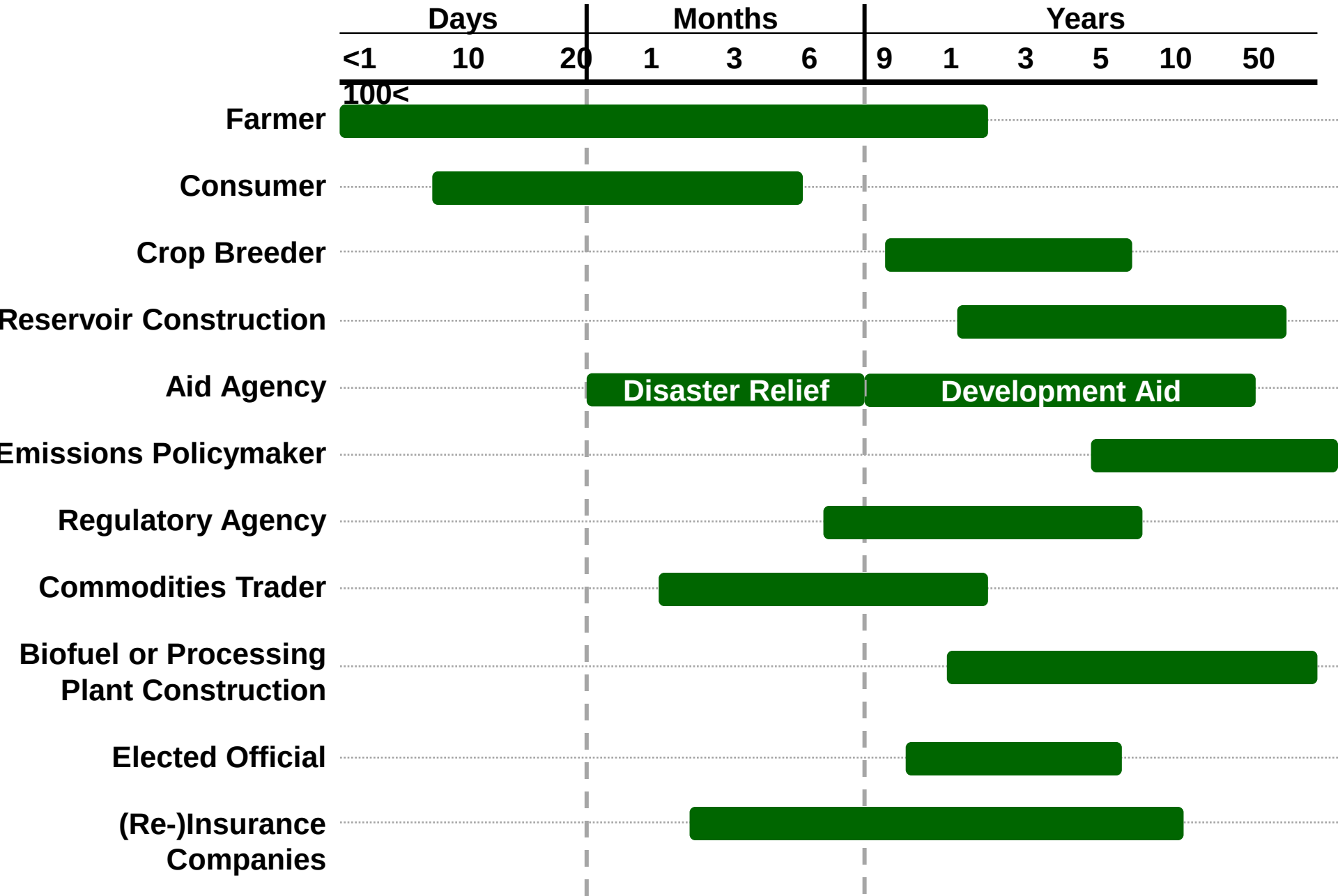
- 5 km resolution, “wall-to-wall” (globally)
- Historical record from 1981- to current
- Collatoral products
  - Surface Reflectance
  - Leaf Area Index (LAI)
  - FPAR (photosynthetically active radiation)

Primary U.S. corn and soybean region

2012 drought depicted by Vegetation Index CDR (July 17)

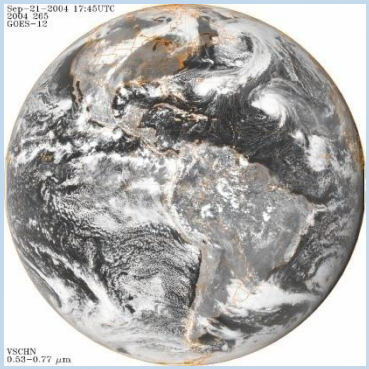


Temporal Scale of Agricultural Stakeholder Interests

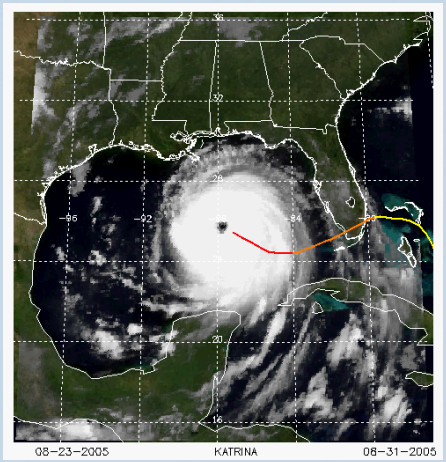


CDRs Supporting Insurance/Reinsurance
Example: Hurricane Trends

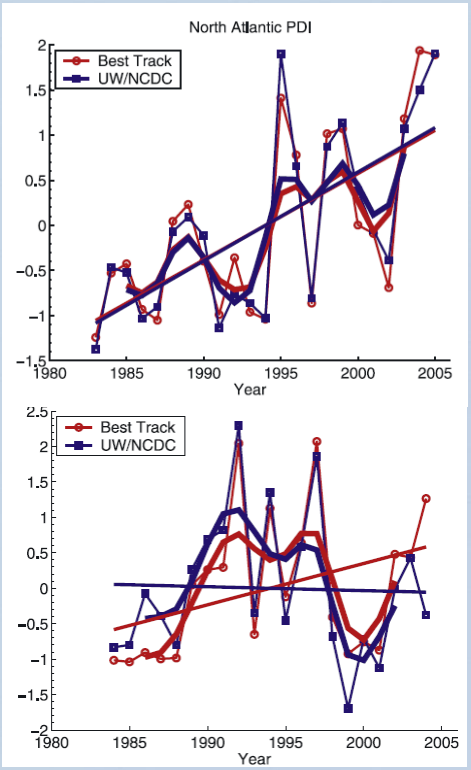
Government provision of data



Transition from government to industry



Decision support information



Hurricane intensity trends
(Kossin et al. 2007)

CDR Access for Decision Makers

Traditional Large Volume Data Access

Current method of data access and delivery

User Model Of Data Access

Preferred method of same

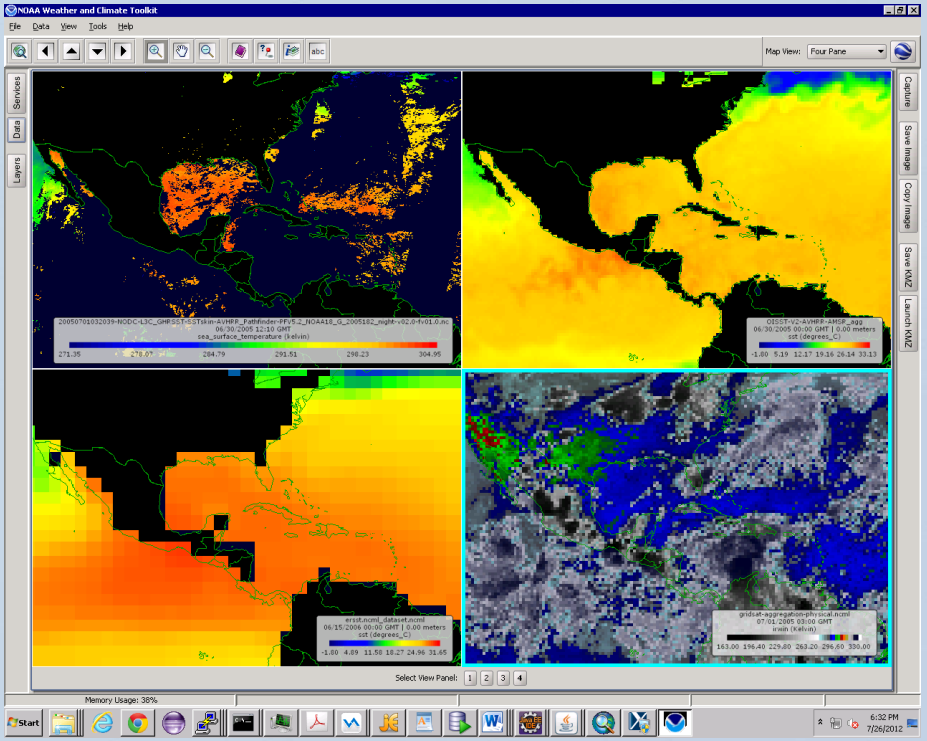
Going from "drinking from the fire hose" to "sipping a cup of tea"

Reduce the data volume, filter what remains, and mix with relevant ecological data to produce a desired product.

Access to CDRs for Decision Makers: IMPACT

Integrated Marine Protected Area Climate Tools

- Provide climate information to marine resource managers
  - Easy access to proven, relevant CDRs
  - Allows importation of user data
  - Supports climate – ecosystem studies
- Include user perspective in design
- Reduces data complexity and size
- Ease of CDR access, uptake
- Customizable to other sectors
  - Water Resource managers
  - Tourism
  - Coastal Inundation (e.g. Sandy)
  - Transportation
  - Education
  - Many more ….



Climate-related applications often require multiple variables at scales/resolutions smaller/finer than what is contained in most climate data sets.

Summary

- CDR Program supports private sector applications
  - Interim Climate Data Records offer many advantages over operational weather products
    - More complete in time and space
    - Consistency over multi-satellite period of record
      - Enables searches for historical analogs
    - “Climate quality” algorithms
    - Better ancillary inputs
    - Better sensor functioning knowledge
  - ICDRs ultimately refreshed with reprocessed CDRs
    - Research grade (typically), but may lag real time by years
  - New tools for easy CDR access, manipulation, downloading