Federal view – observations, and links to predictive modeling

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National Plan for Civil Earth Observations (2014)
  • Plan update in progress (due in 2017)

Plans include:
  • inventories; baseline assessment; and recommended portfolio based on decadal needs
  • Uses a hierarchical assessment framework, based on 13 "societal benefit areas," e.g., weather, climate, hazards, energy and natural resources, etc.
  • Assessment also framed by key objectives, that include derived products and services based on data combinations

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Drivers behind federal priorities
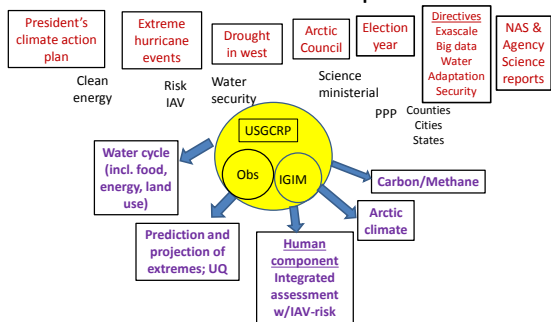
What's beyond

• Disruptive technologies of the next 5-10 yrs
  • Computing: exascale, neuromorphic, quantum
  • Data storage: demands, management
  • Data security: risks, controls, management
  • Data (observed, model generated) management: interoperability, compatibility, server side analyses
  • Thinking swarms (robotics, server side analysis)
  • Environmental data collection (e.g., w/smart phones)
• Education and use cases
  • Computing in 2022
  • Managing disparate types of data (e.g., social data?)
  • Use cases to promote community priorities

Atmospheric Radiation Measurement (ARM) Climate Research Facility

Fine resolution field observations to advance high resolution modeling, prediction,

Locations of past and current ARM field campaigns

ARM Permanent Sites
➢ Southern Great Plains (Oklahoma)- continental
➢ North Slope of Alaska (Barrow) - Arctic
➢ Azore Islands – marine site

ARM Mobile facilities go on short term deployments proposed by the research community and selected by peer review

ARM 24/7 observations and data are freely available

Measurements on sites
➢ Meteorology, radars, lidars, radiometers
➢ Aircraft (including UAVs)

Science
➢ Aerosol influences on convection
➢ Cloud condensation nuclei
➢ Large eddy simulation of cloud evolution
➢ Mixed phase and ice clouds