USGS Water Programs and the Water Resources Research Institutes

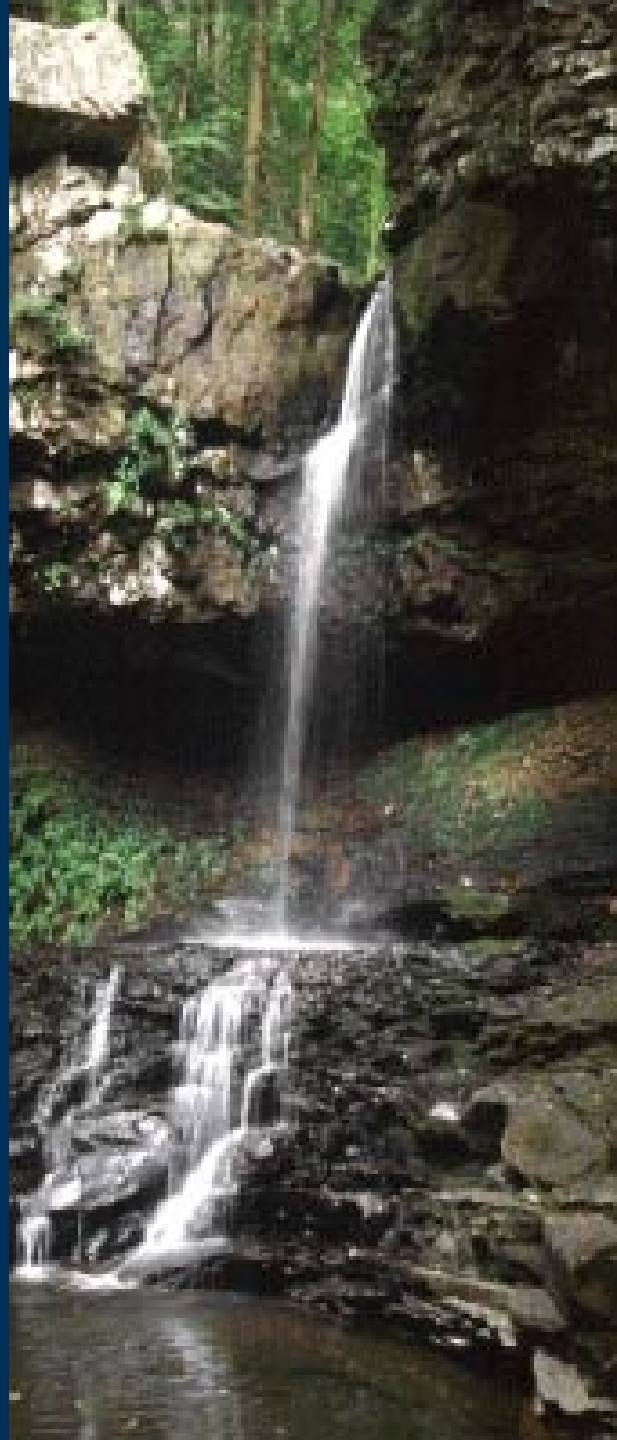
2nd Conference on Water Resource Sustainability Issues on Tropical Islands

Earl Greene, USGS, Chief of External Research

1-3 December 2015

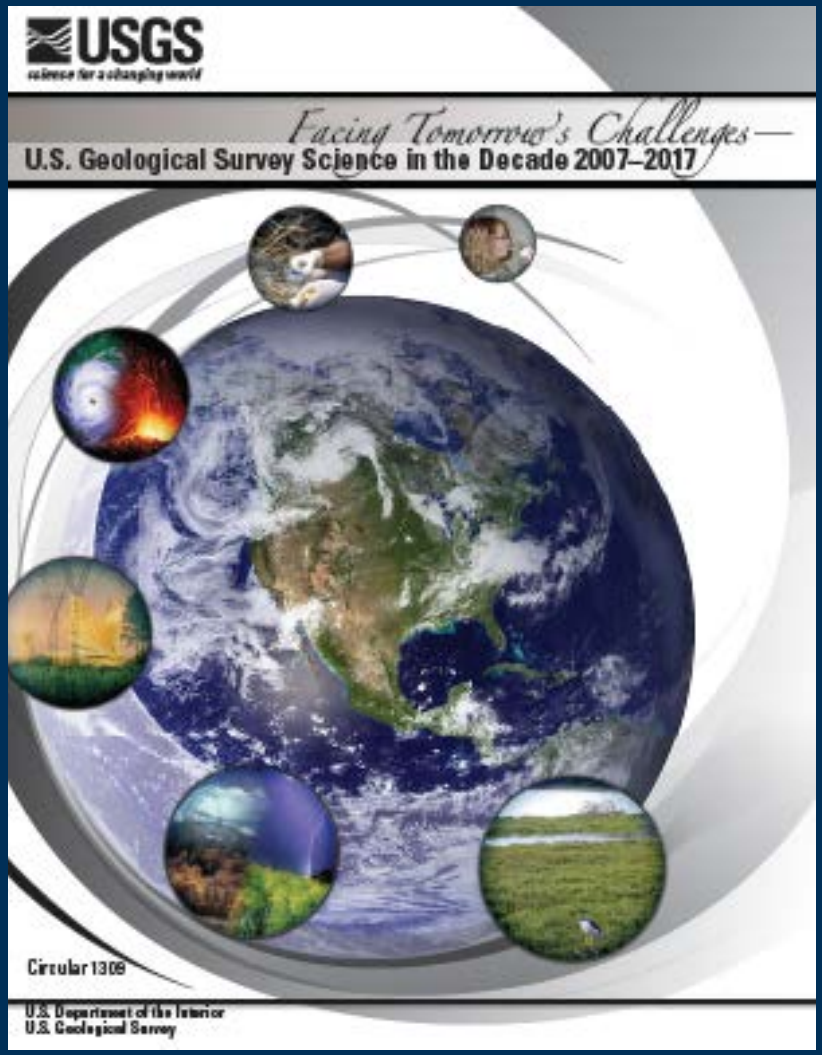
Honolulu, HI

USGS



Water Mission Area — one of 7 Mission Areas

- **Observations**
- **Assessments**
- **Research**
- **Information Delivery**



Facing Tomorrow's Challenges, USGS Science in the Decade 2007—2017, Circular 1309

Water Mission Area - Programs

- **Water Availability and Use Science**
- **National Water Quality**
- **Groundwater and Streamflow Information**
- **Water Resources Research Institutes**

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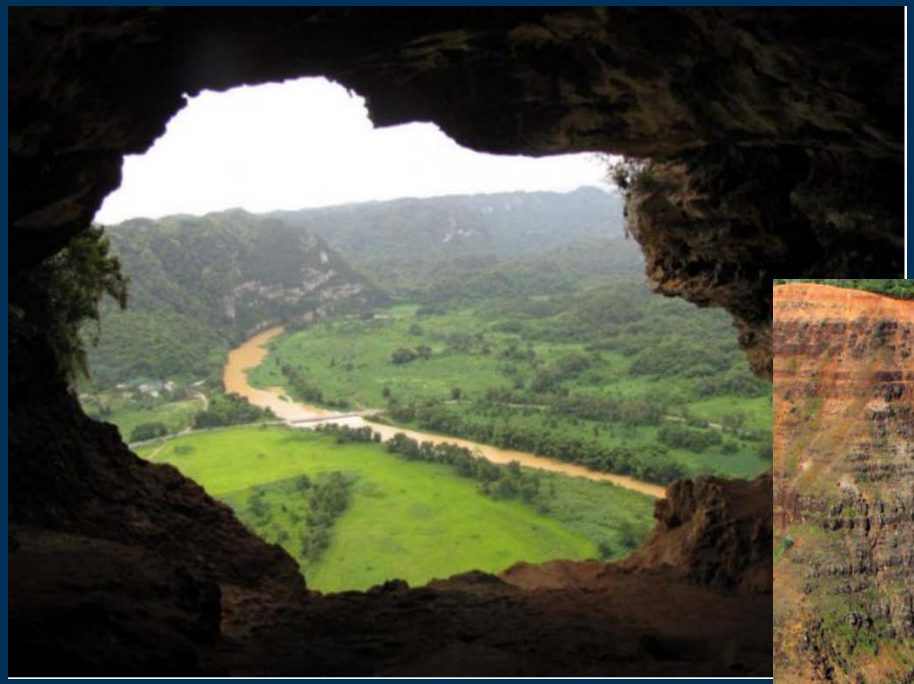
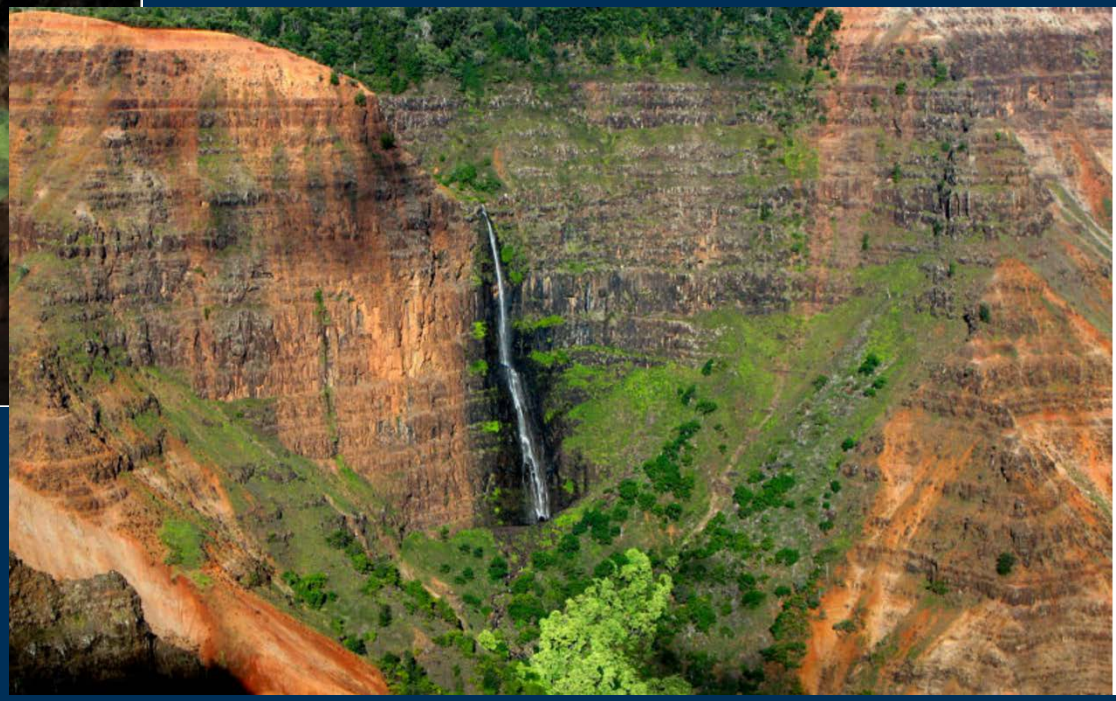
USGS Water Science in the Caribbean and Pacific Islands



Cueva Venta, Puerto Rico



Waipo’o Falls, Kauai, Hawaii

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USGS – Water Mission in the Water Science Centers

- Provide information to manage, protect, and enhance water resources
- Address water-related hazards
- Non-regulatory role
- Provide actionable information that is reliable, impartial, and timely

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USGS Pacific Islands and Caribbean WSC - Core Capabilities

Hydrologic Data Collection	• Climate • Streamflow and suspended sediment • Groundwater levels and salinity • Water quality
Research and Assessments	• Statistical analysis • Hydraulic modeling • Watershed modeling • Groundwater flow and solute transport modeling
Information Services	• Flood-alert systems • WaterWatch web pages • NWISWeb database • Publications and presentations

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USGS Pacific Islands & Caribbean WSCs – Focus Areas

- Groundwater availability
- Quantity and variability of streamflow
- Water quality related to land use
- Climate variability and change

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USGS Pacific Islands & Caribbean WSCs – Hydrologic Data Collection Program

- USGS has been collecting hydrologic data in Hawaii since the 1900s and in Guam since the 1950s, PR since the early 1960s
  - Flood-alert sites to help protect life and property
  - Peak-streamflow sites to assess flood hazards
  - Reference sites to assess effects of climate change
  - Water-resource management sites to understand effects of land- and water-use change
- Funded in cooperation with Federal, State and Local agencies

USGS

Opportunities for Collaboration

- Apply geophysical methods to understand subsurface geology
- Estimate ET and runoff for a variety of native and non-native vegetation
- Estimate groundwater recharge using independent methods
- Develop approaches to relate land-cover and climate-change factors to hydrological components
- Develop innovative numerical methods that results in faster groundwater flow and solute transport modeling codes
- Access to faster computers to undertake formal optimization techniques to assess groundwater availability

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Water Resources Research Institute Program

Federal-State Partnership:

- Conducts applied & basic research to solve water resource issues
- Technology transfer and dissemination
- Train the next generation of scientists and engineers

Network of 54 University Institutes

USGS

Water Resources Research Institute Program

- Annual Base Grants
  - Research to assist states in solving hydrologic issues
  - Provide training to students through research
- National Competitive Grants
  - Regional and National hydrologic issues
  - Collaboration with USGS Scientists
- Coordination Grants
  - Opportunity to use the expertise of University Faculty and students
  - USGS and other federal agencies
- Student Interns

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Questions?

USGS
science for a changing world