

Central Maui Ground-Water

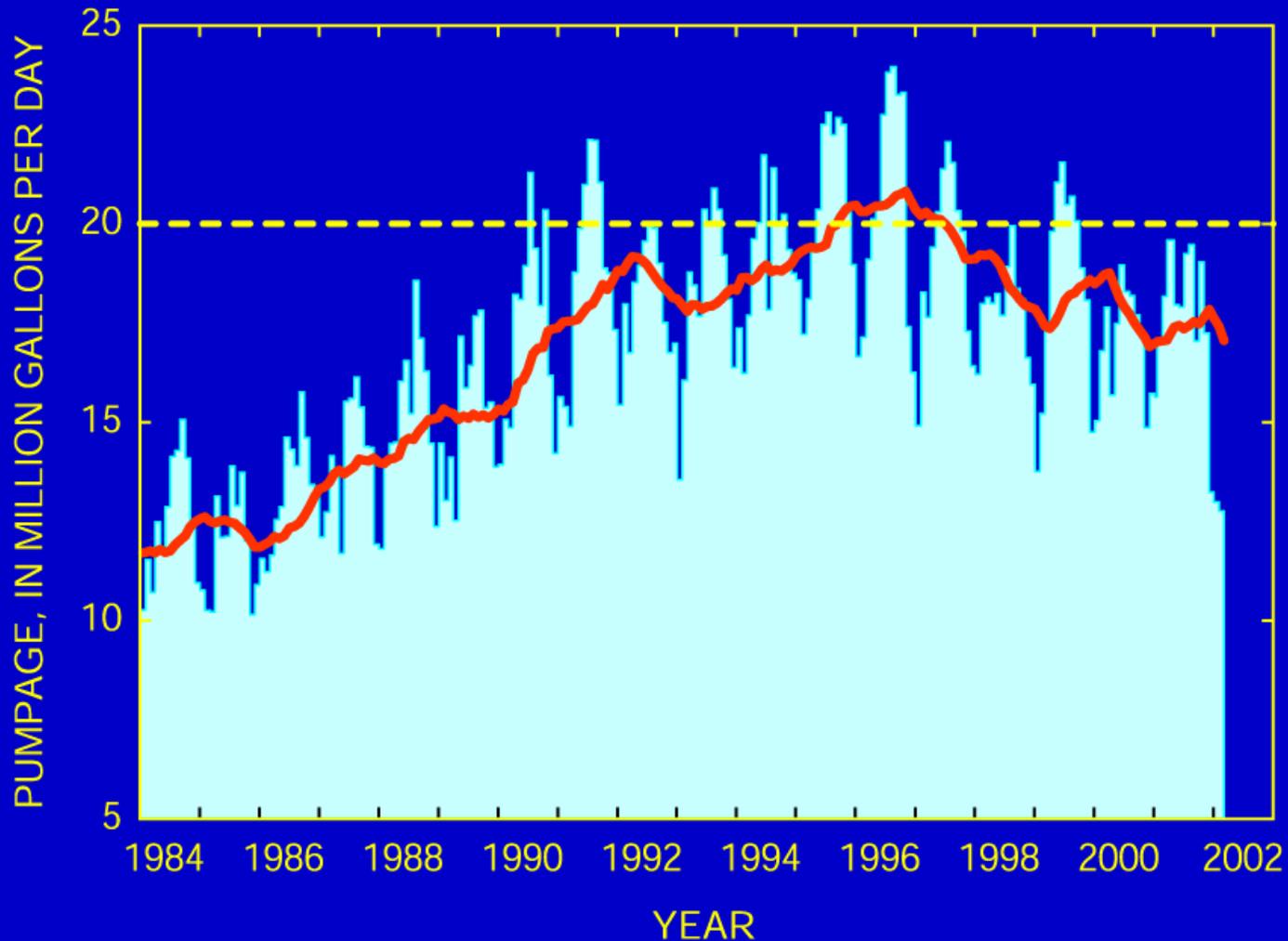
July 2003



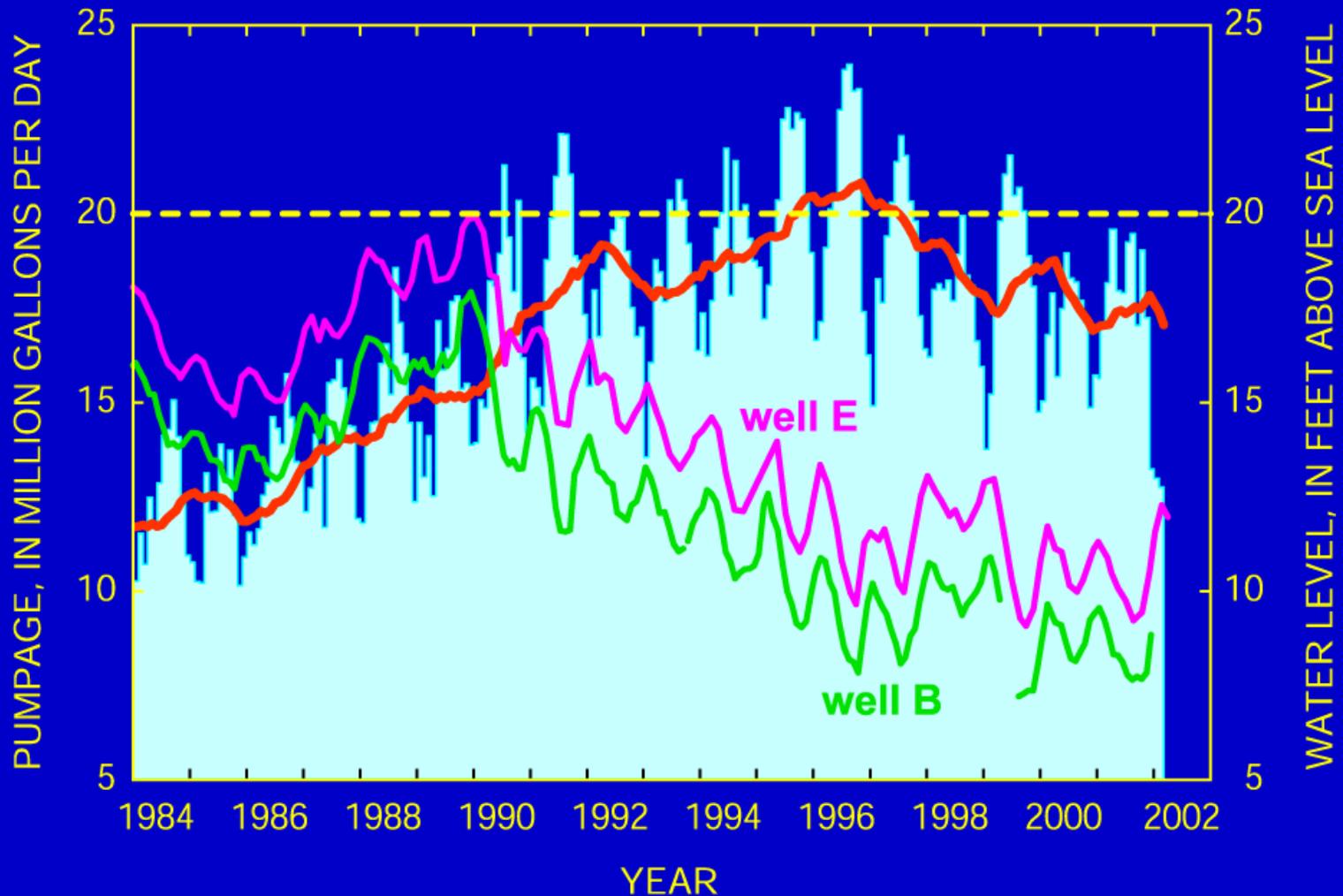
Topics and Issues

- Current status of lao
Can existing withdrawals be sustained?
- Methods to determine sustainability
What is the maximum yield of existing wells?
- Current USGS project
How can additional water be developed?

Can existing withdrawals be sustained?



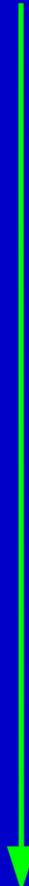
Can existing withdrawals be sustained?



Levels of Management

- Monitor pumped wells
- Monitor water levels or salinity in observation wells
- Analytical model
- Numerical model

Cost



Ease of use

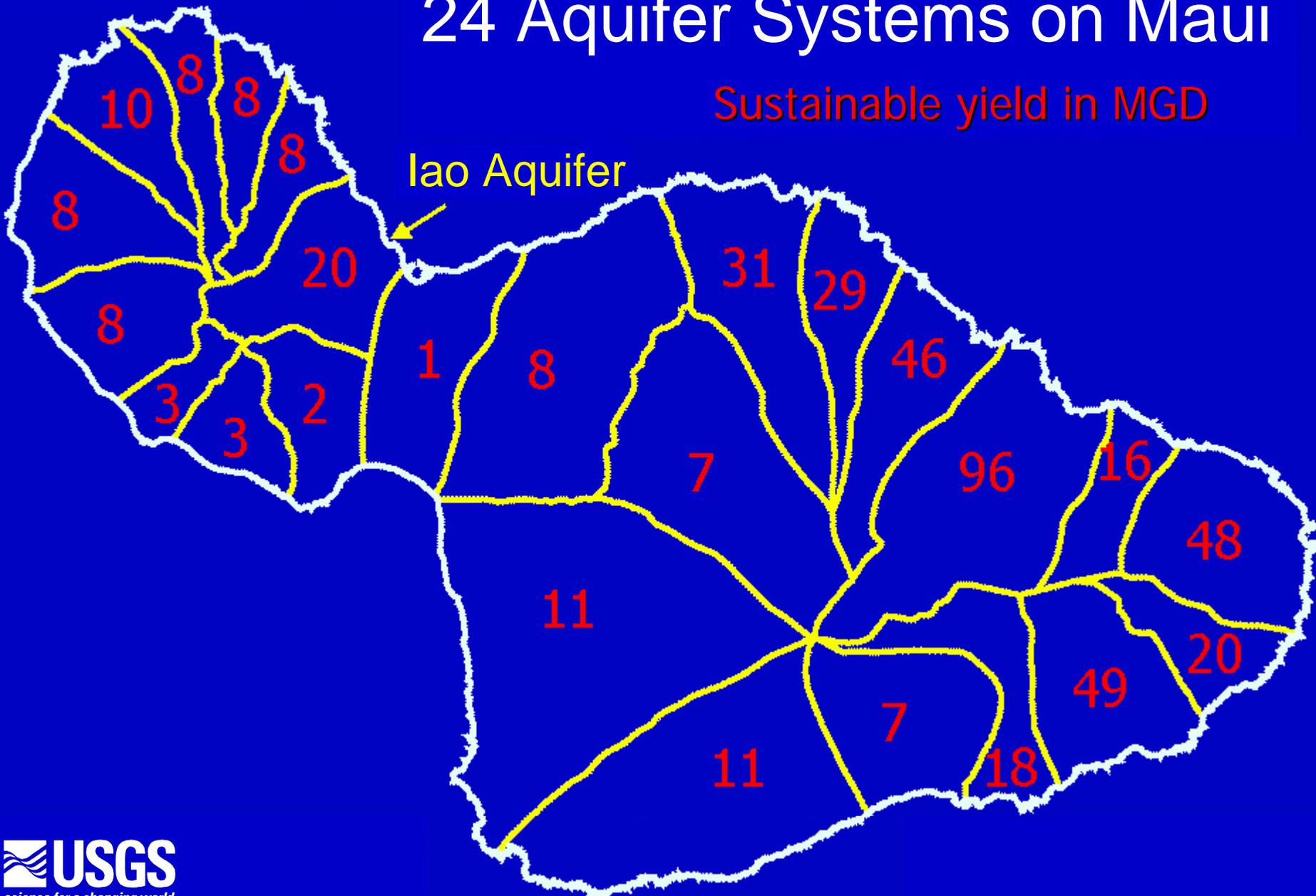


Predictive value

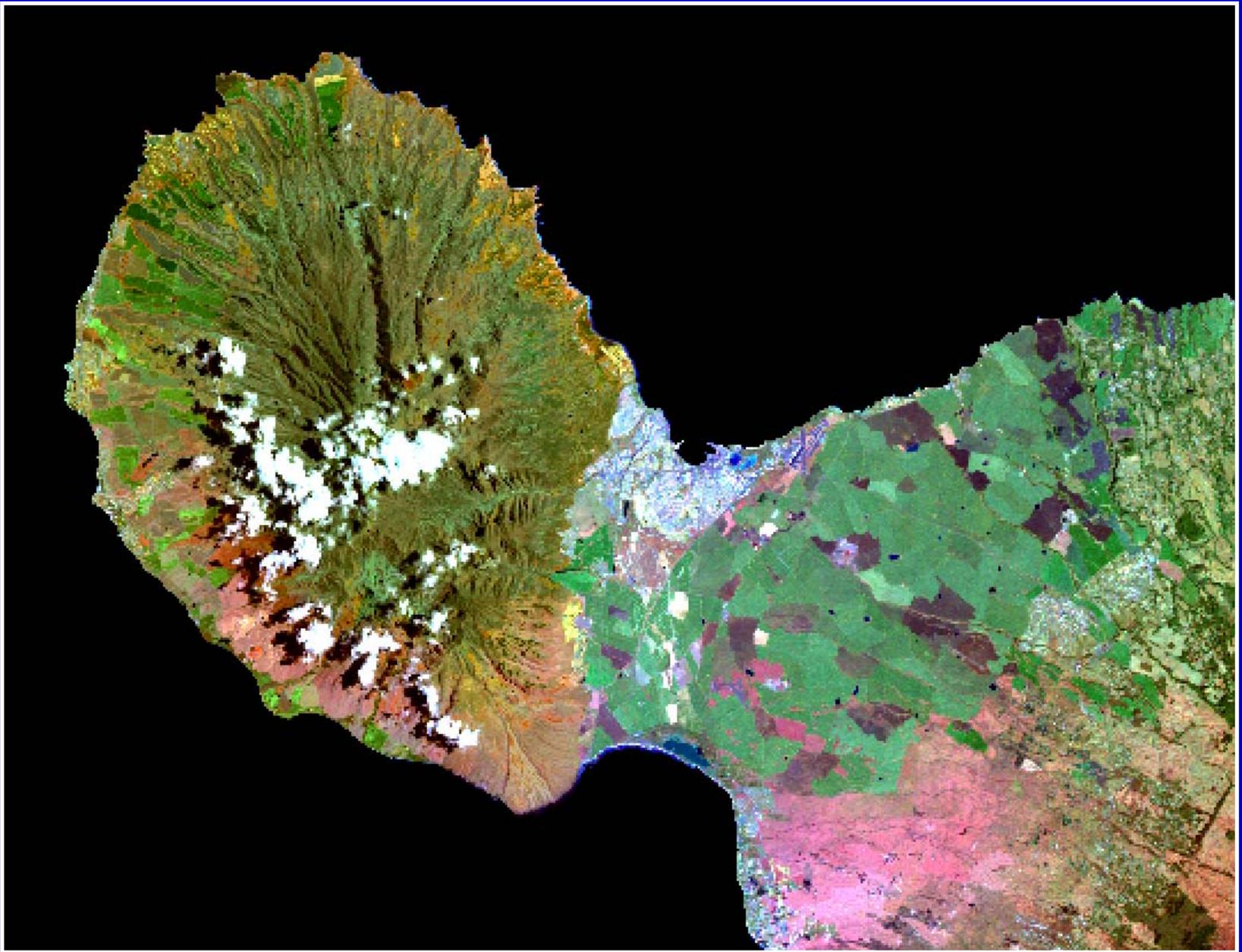


24 Aquifer Systems on Maui

Sustainable yield in MGD



Iao Aquifer



Numerical Ground-Water Model

- Mathematical representation of ground-water flow
- Based on water budget, aquifer properties, and water use information
- Best tool for understanding a system
- Allows some predictive management

Objectives of the Central Maui study

- Develop a better understanding of the regional GW flow system
- Improved estimates of ground-water recharge
- Estimate effects of selected withdrawal scenarios on water levels, transition zone thickness, and GW/SW interactions

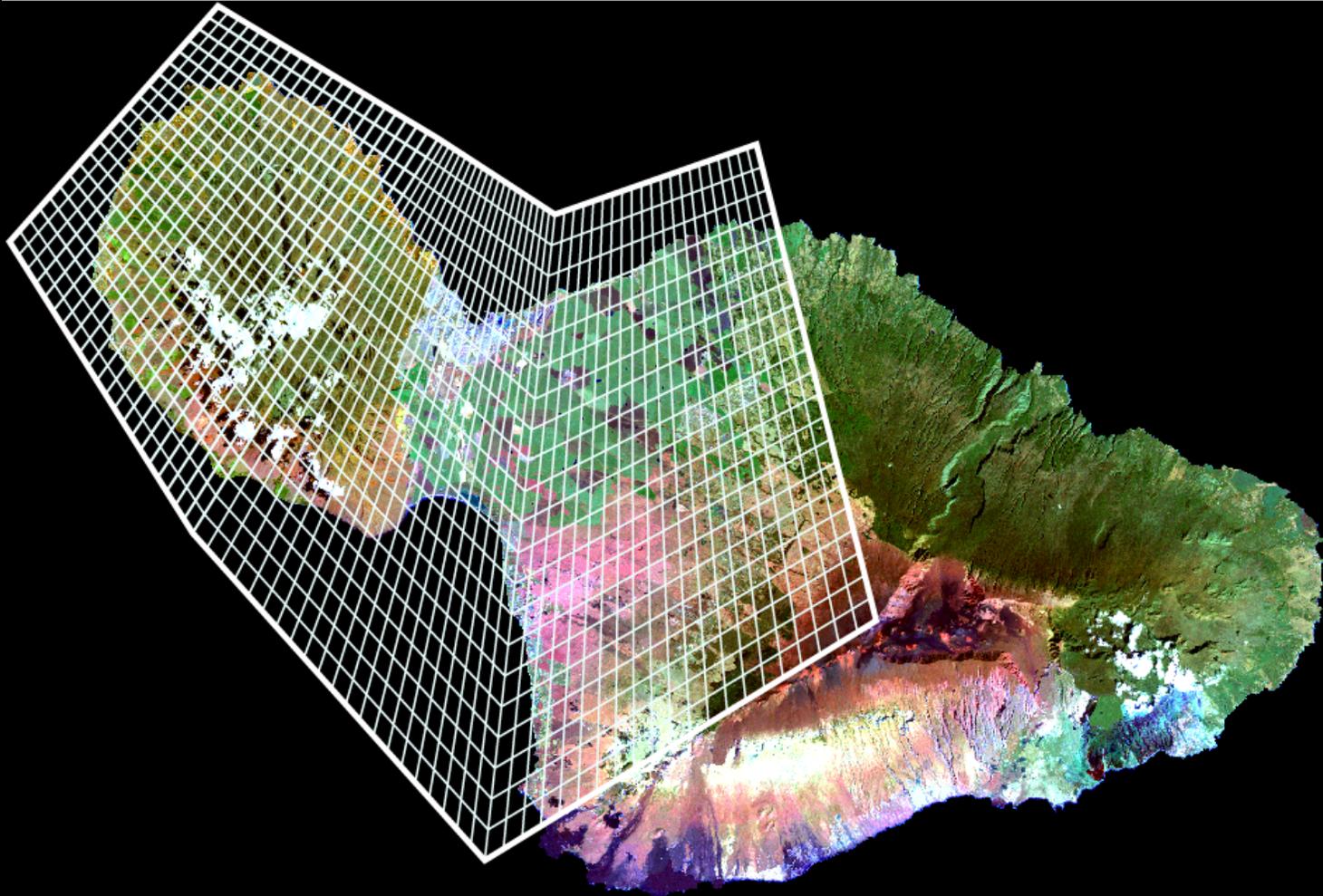
Cost: \$1 million

Duration: FY03-07 (4.5 years)

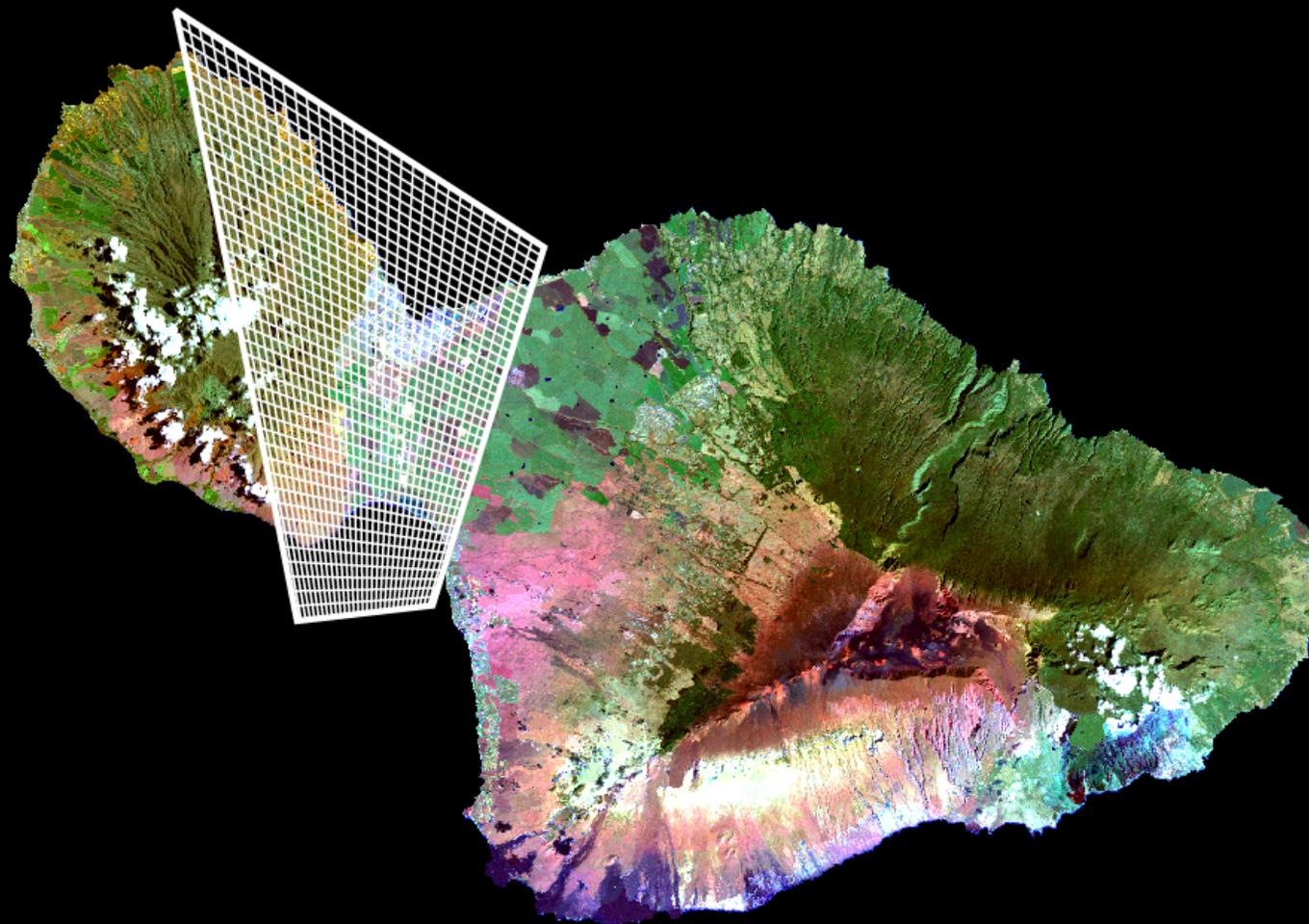
Questions that can be resolved with a numerical ground-water model:

- Can existing wells yield 20 Mgal/d in lao?
- Where should new wells be drilled?
- What if sugarcane cultivation stops?
- What happens during droughts?

Regional Model



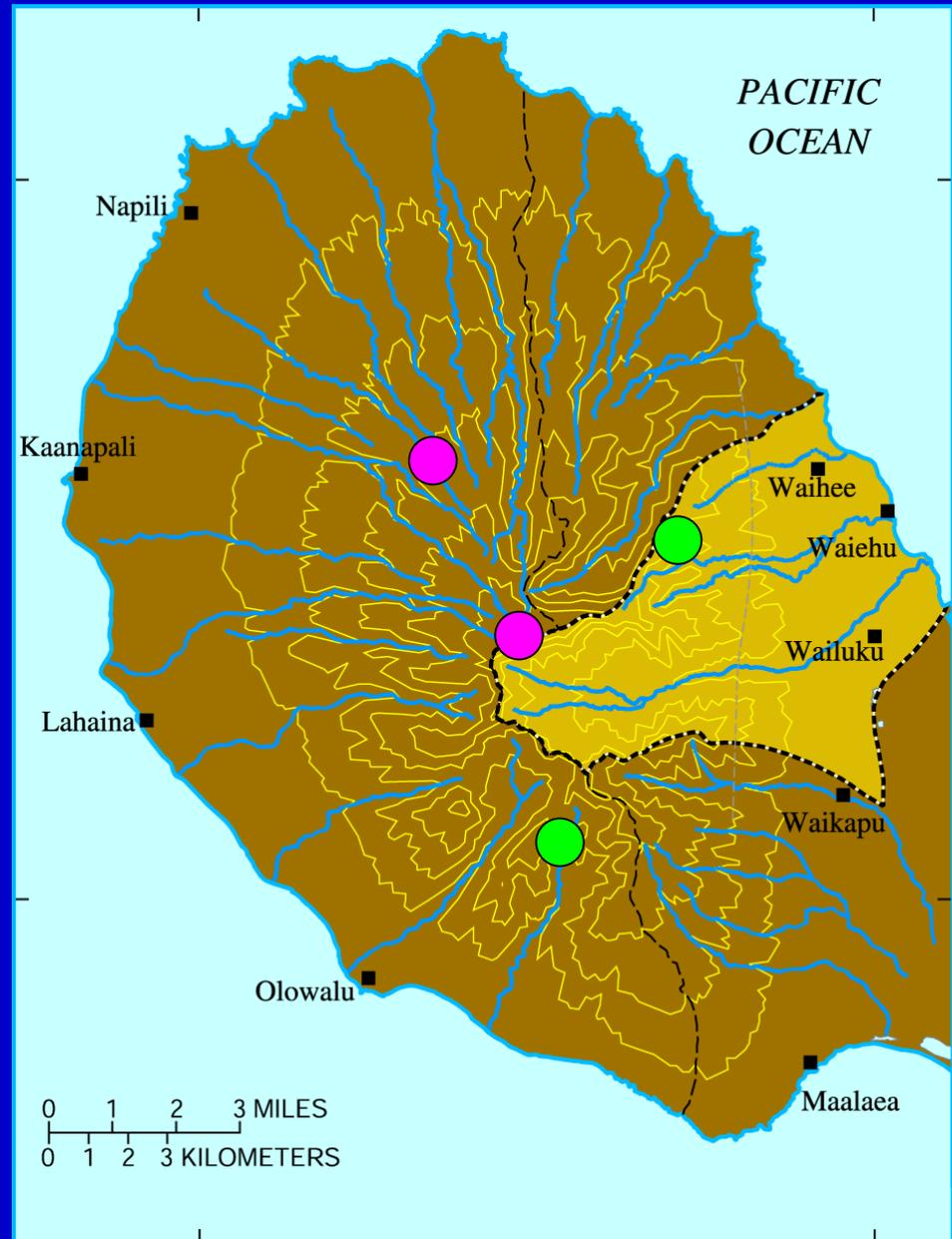
Refined Model



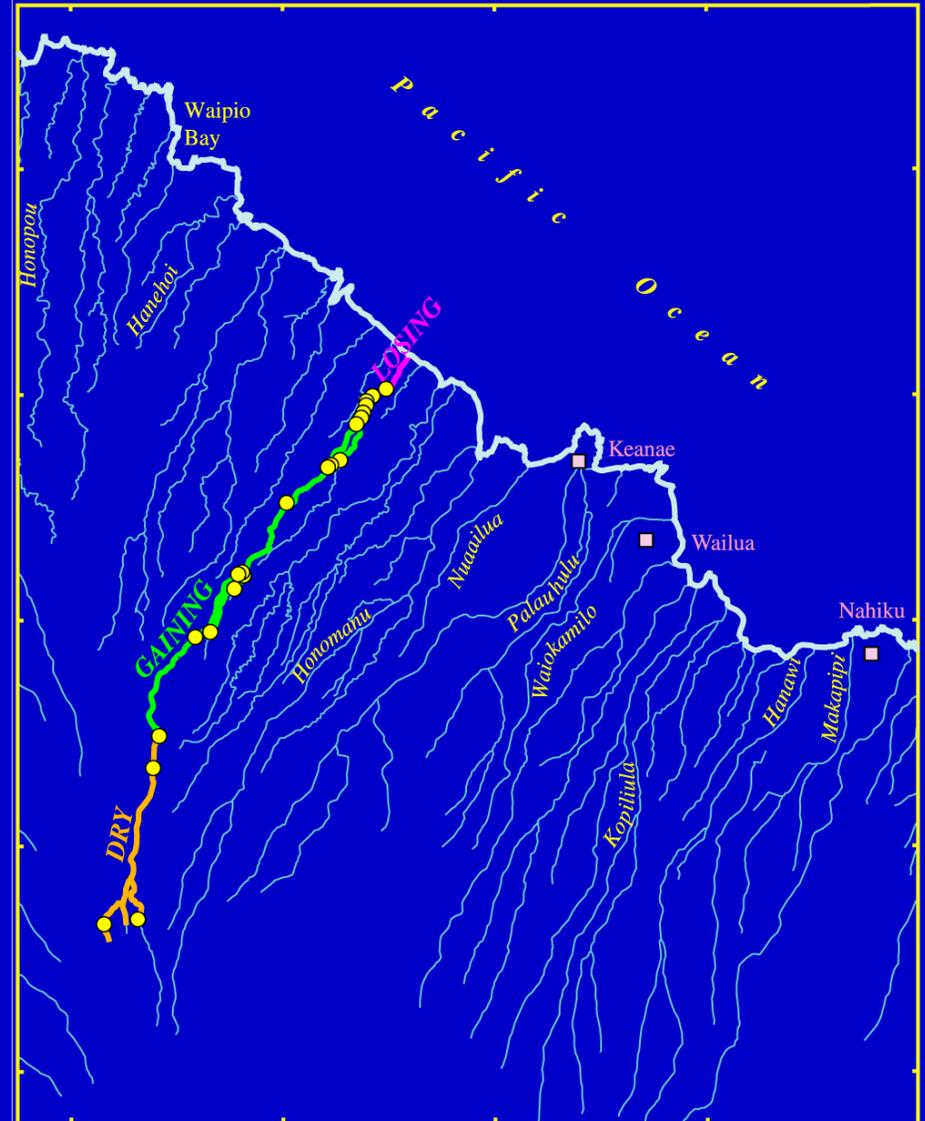
Status of project

- 2 climate stations ready to be installed
 - Waiting for one permit approval
- Finding benchmarks for well survey
 - Kanoa Ridge top priority
 - Hope to use GPS
- Next steps
 - Well elevations
 - More climate stations
 - Surface water measurements
 - Pumpage data

Possible Sites for Weather Stations

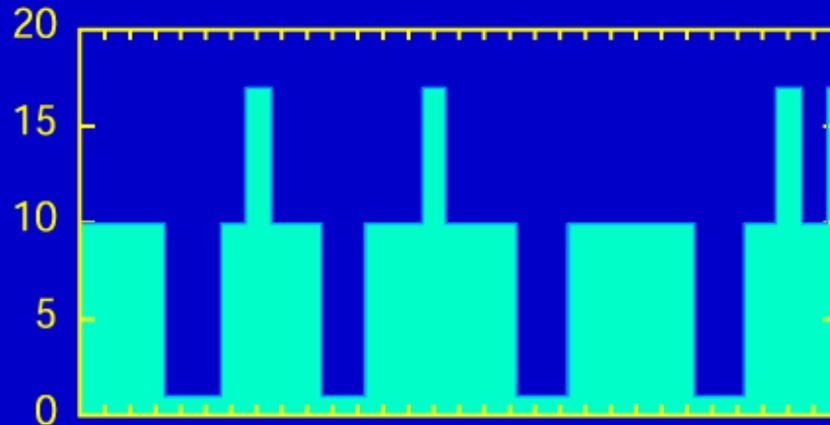


Quantify Ground-Water Discharge to Streams



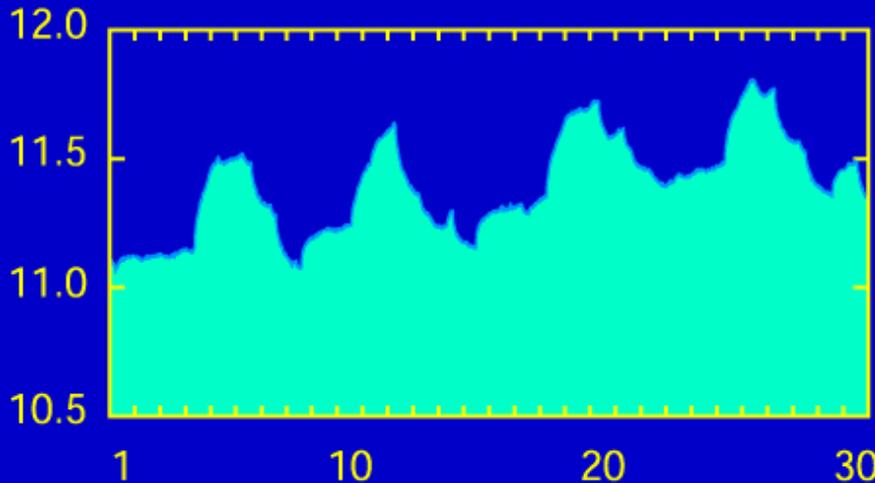
Ground-Water Monitoring

PUMPAGE, IN MILLION
GALLONS PER DAY



Pumpage

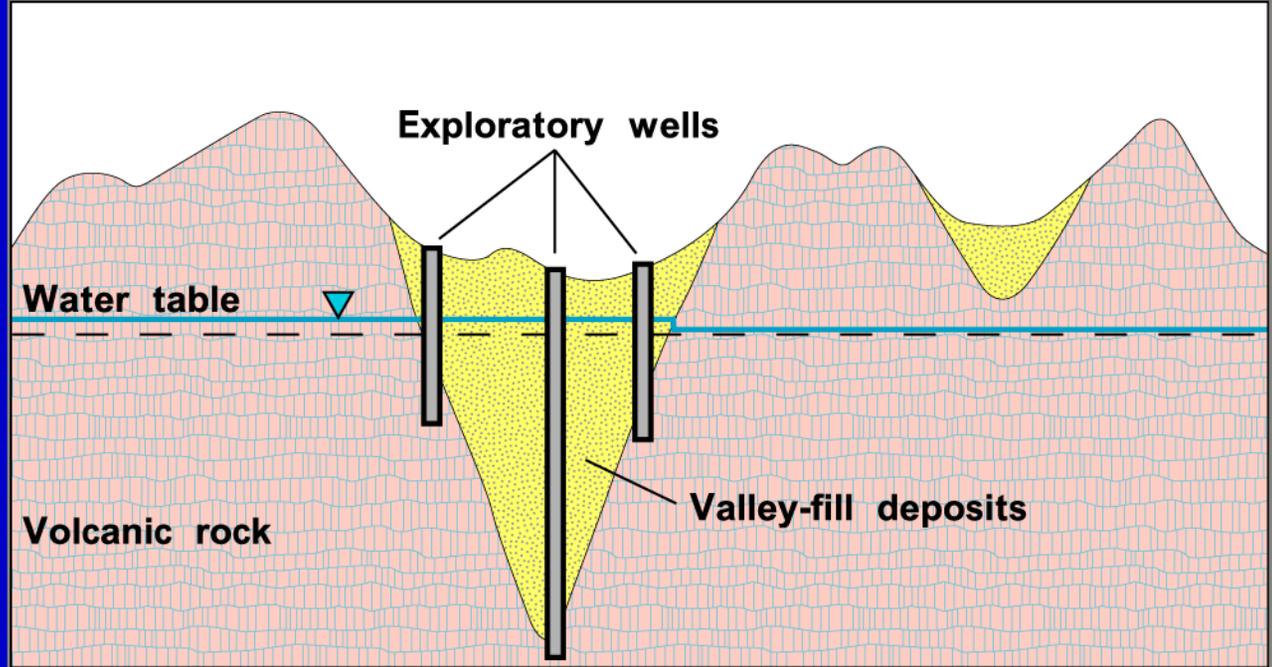
WATER LEVEL, IN
FEET ABOVE SEA LEVEL

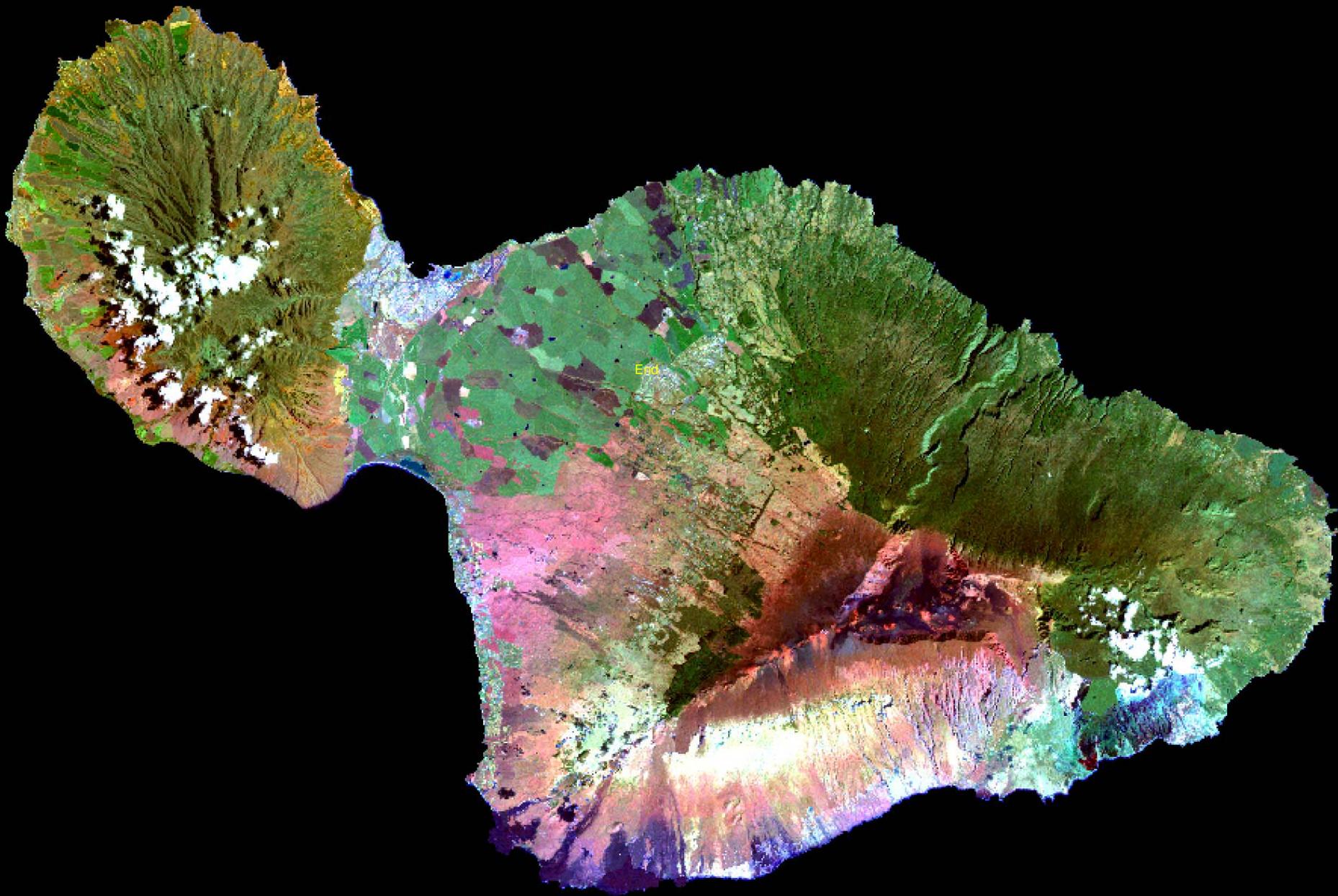


Water
Levels

September 1994

Exploratory Drilling





Ego