The Future of Water Management

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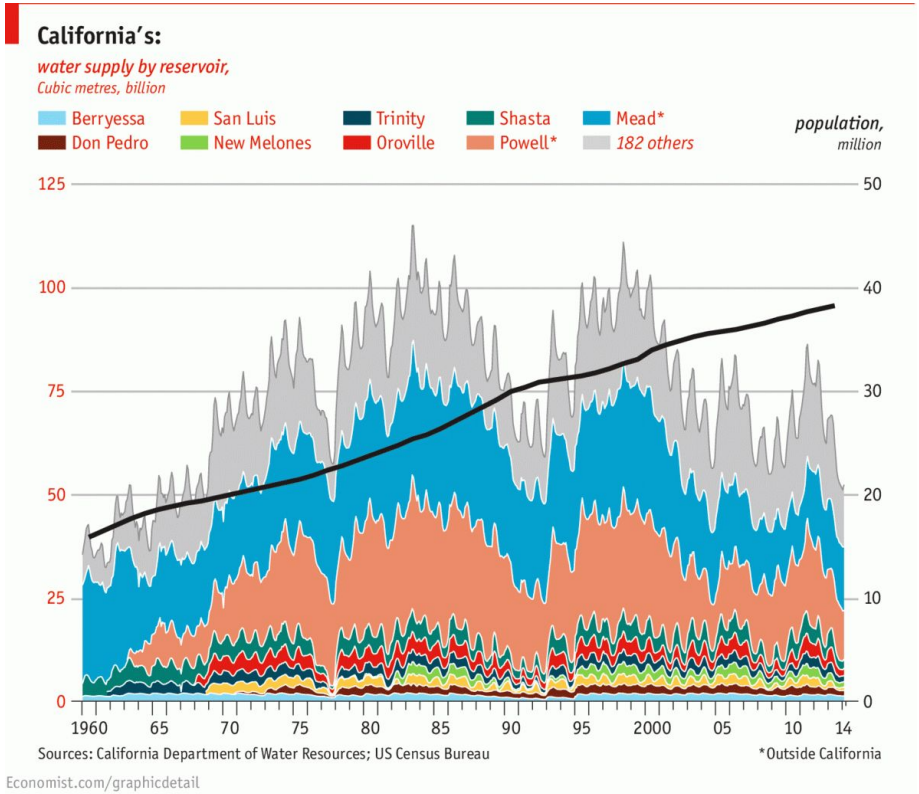
Life beyond the 100th meridian



Our state's water system was design a generation ago for a state half its current size

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"It's a **different world**...we have to act differently"
-Governor Brown

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California's water industry isn't wired to adapt to climate change

The New York Times

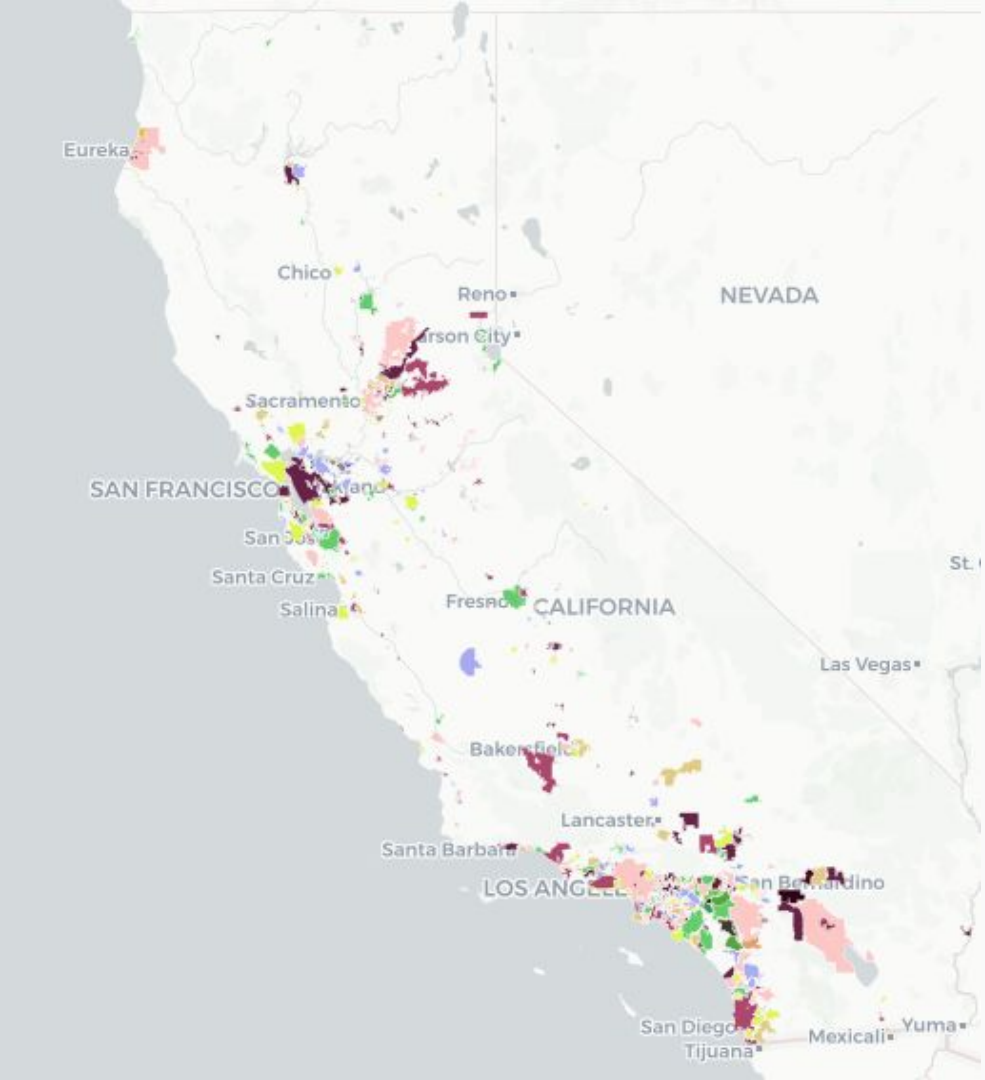
Water Is Broken. Data Can Fix It.

By CHARLES FISHMAN MARCH 17, 2016

With 1000's of local water agencies, digital integration is necessary so California can adapt to an uncertain future

What is the California Data Collaborative?

- Launched Jan 2016 by water agencies for water agencies.
- Goal: Leverage modern data science to ensure water reliability
- Powered by ARGO, a 501(c)3 public data infrastructure non-profit



SCUBA

Strategic

California

UrBan water

Analytics

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“We not only have the opportunity to collaborate on tools and research we develop together, we have the chance to partner with talented and innovative stakeholders from around the world to assist us in using data to make better water management decisions.”

— Elizabeth Lovsted, Director of Water Supply Planning, EMWD

Physical infrastructure to tap into new water resources

Digital infrastructure optimizing existing water resources

Supporting water managers into an uncertain future

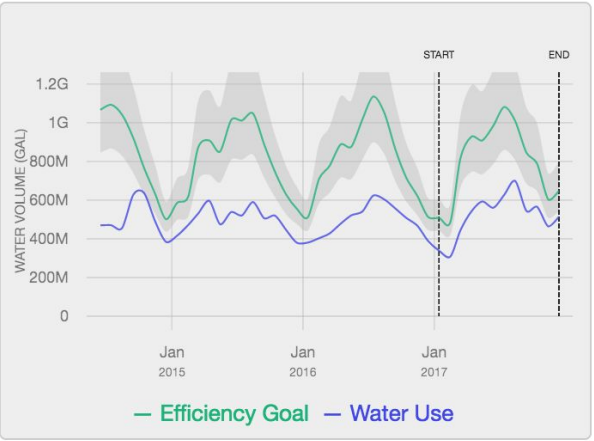
Efficiency Explorer v1.2 About Tool Powered by ARGO

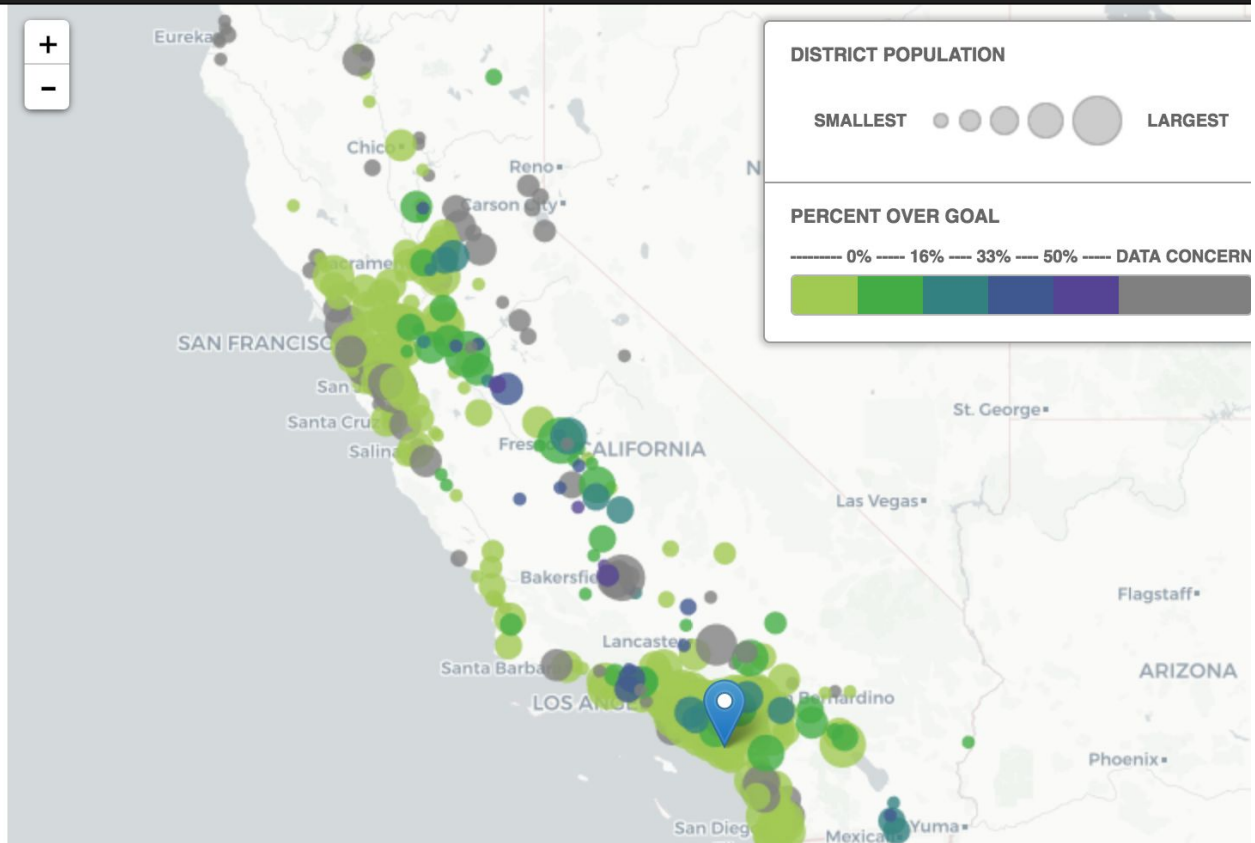
Scenario Builder

Supplier

Moulton Niguel Water District

Residential Efficiency Goal: 29453.42 AF
Residential Use: 19005.21 AF
Efficiency: 10448.21 AF *within* goal in this scenario | -35%
Data Quality: Useful first approximation





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Multiple benefits: modeling water rates

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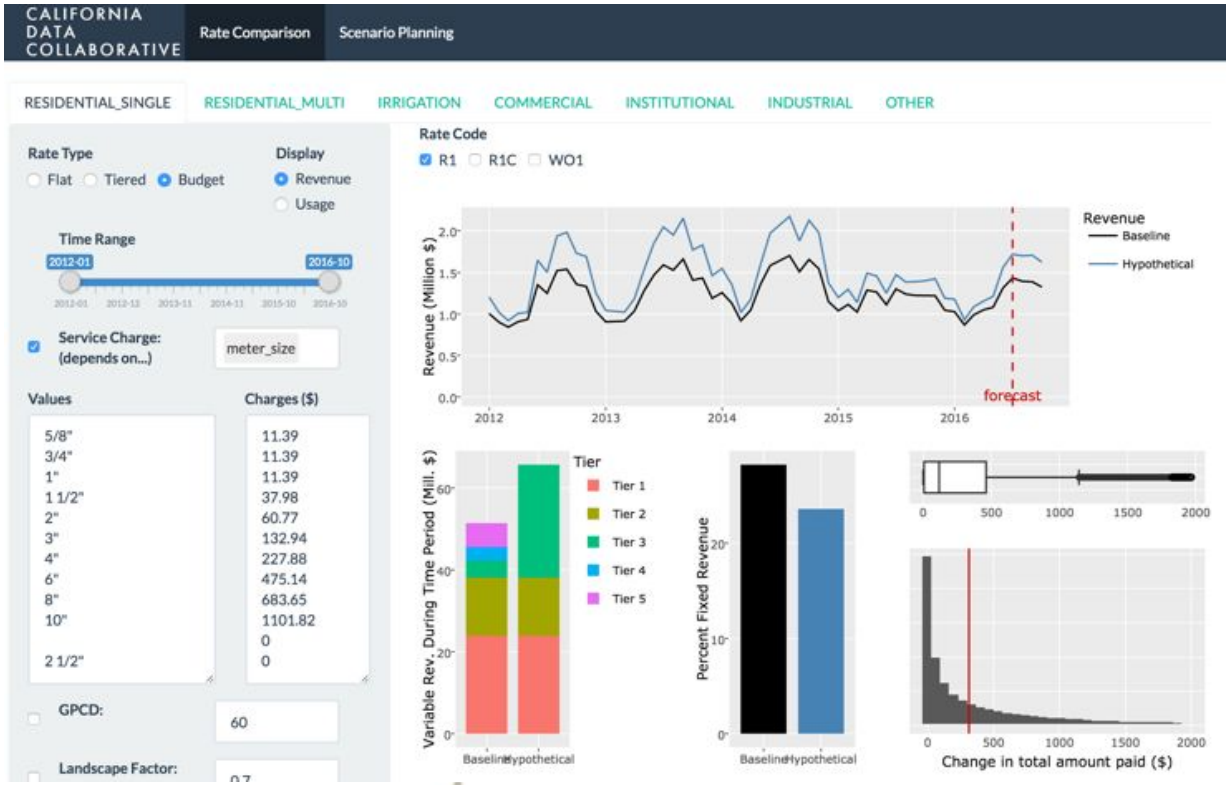
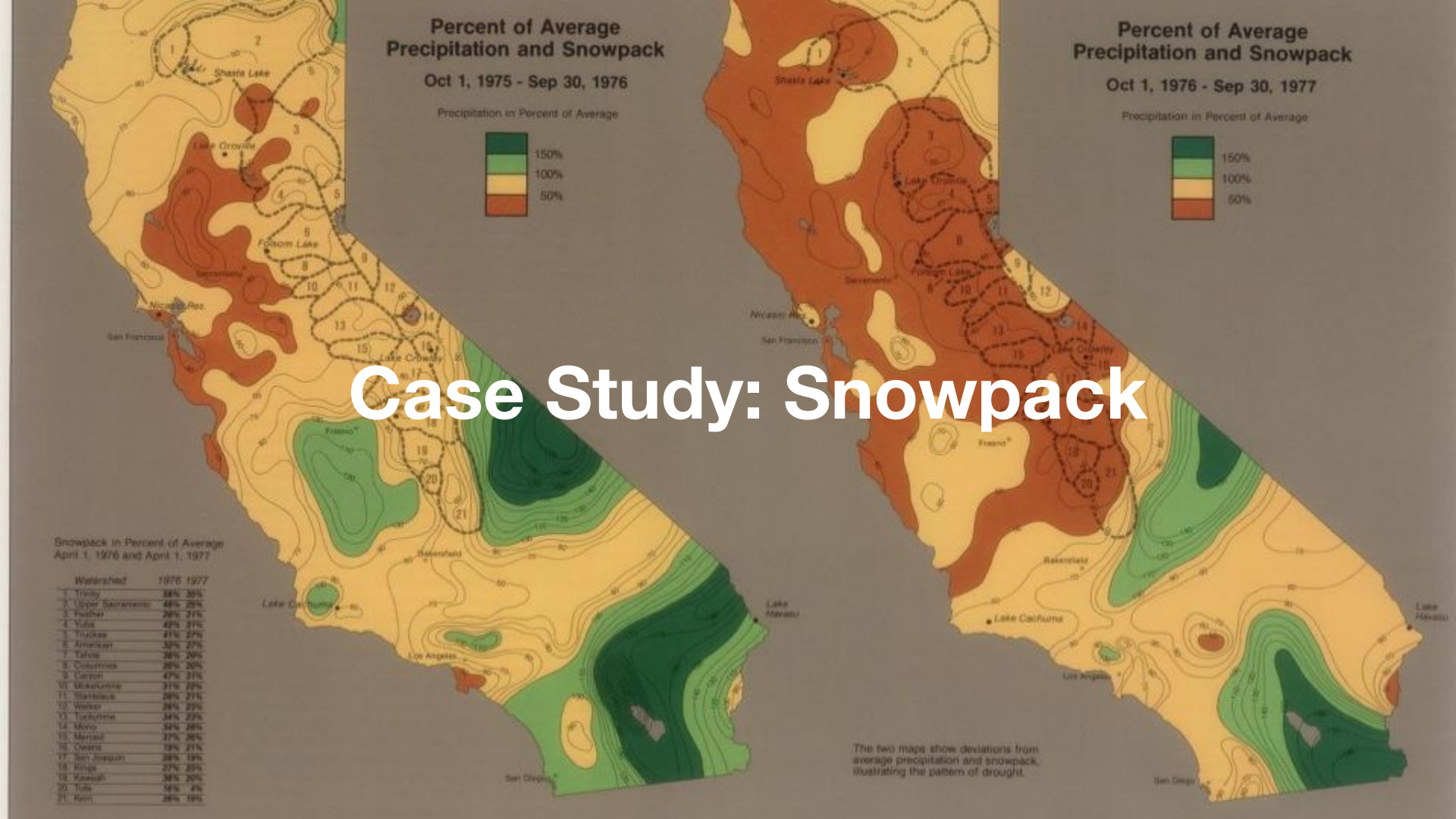


$20 million

Amount ARGO's platform saved Moulton Niguel Water District by improved water demand forecasting



Case Study: Snowpack

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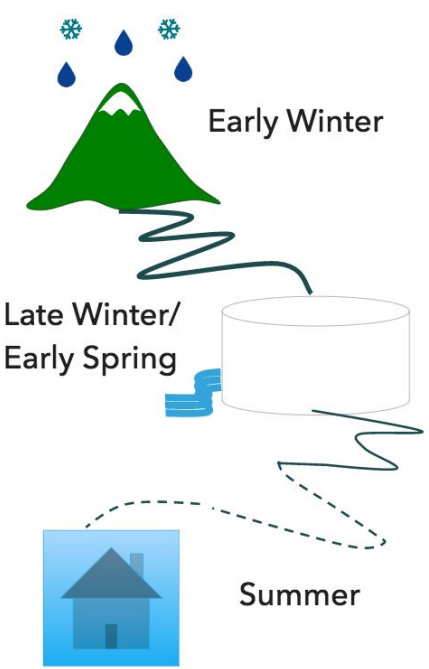
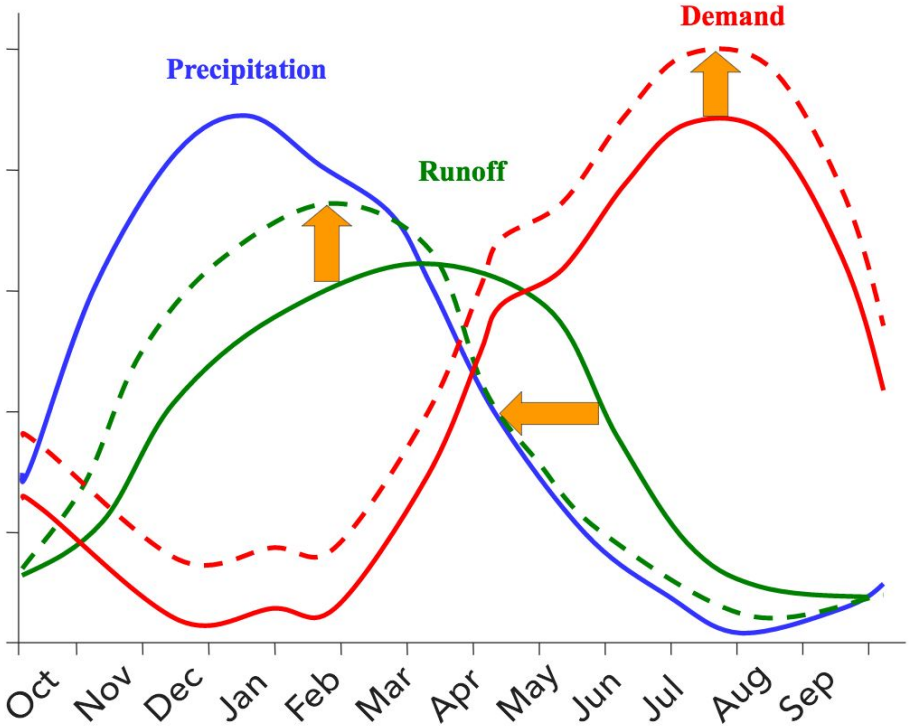
Climate change

Future



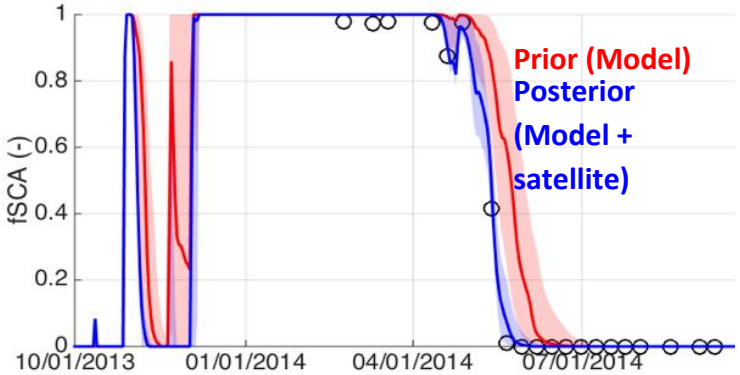


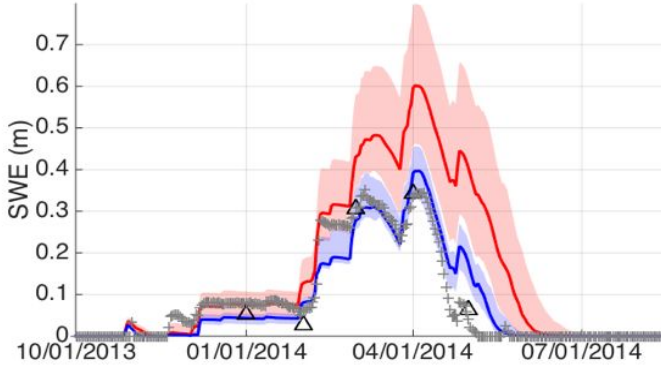
Real time estimation of snow over the Sierra Nevada

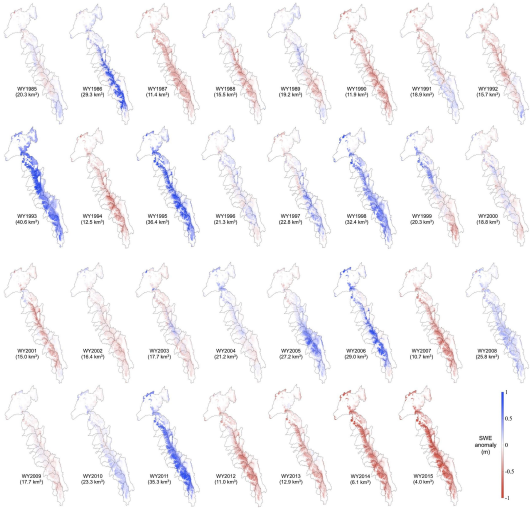
Gonzalo Cortés - UCLA

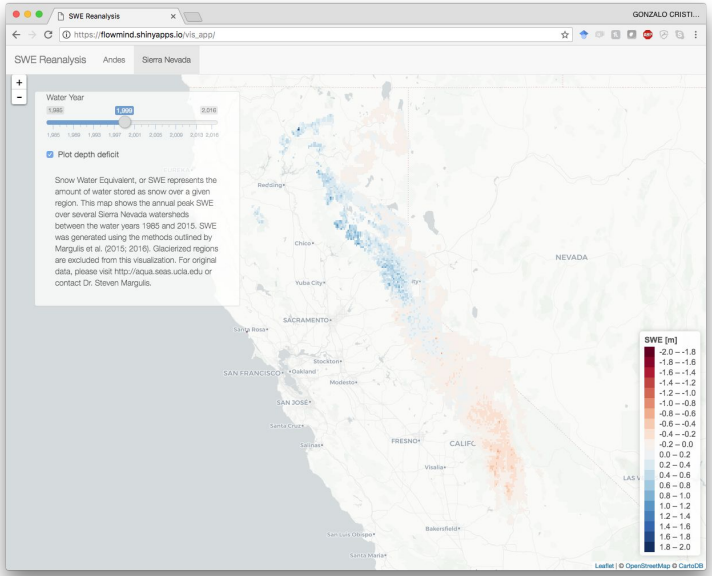
1

Snow simulations (from model) are conditioned on observed data from satellites









2

Result are historical spatial estimates of SWE for 1984-2017 (Landsat era), constrained by observed data.

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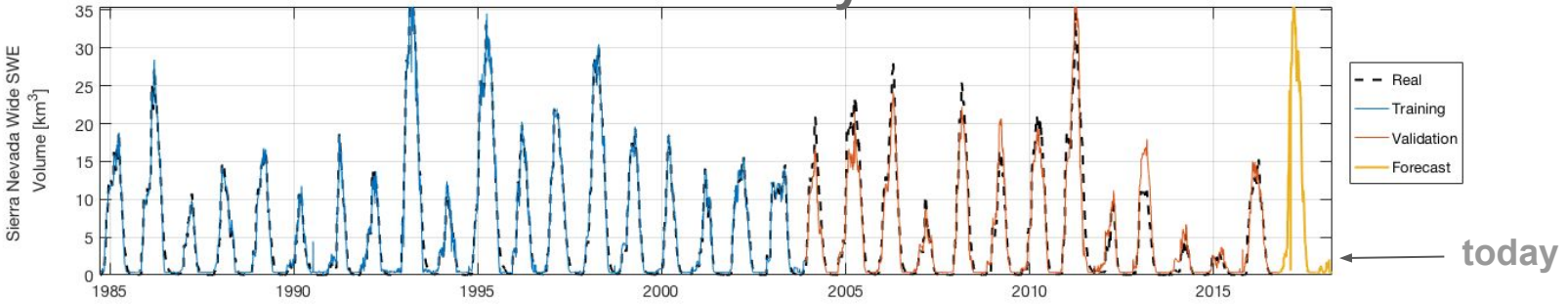
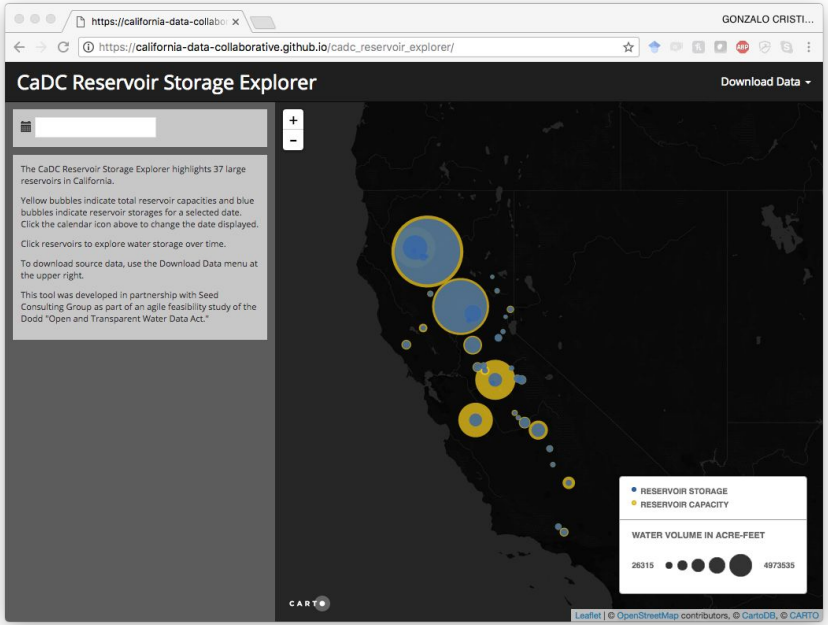
Historical Sierra Nevada reanalysis + real-time model implementation: **Real-time water resource availability**





Real time California-wide assessment of **all different types of storage.**

4

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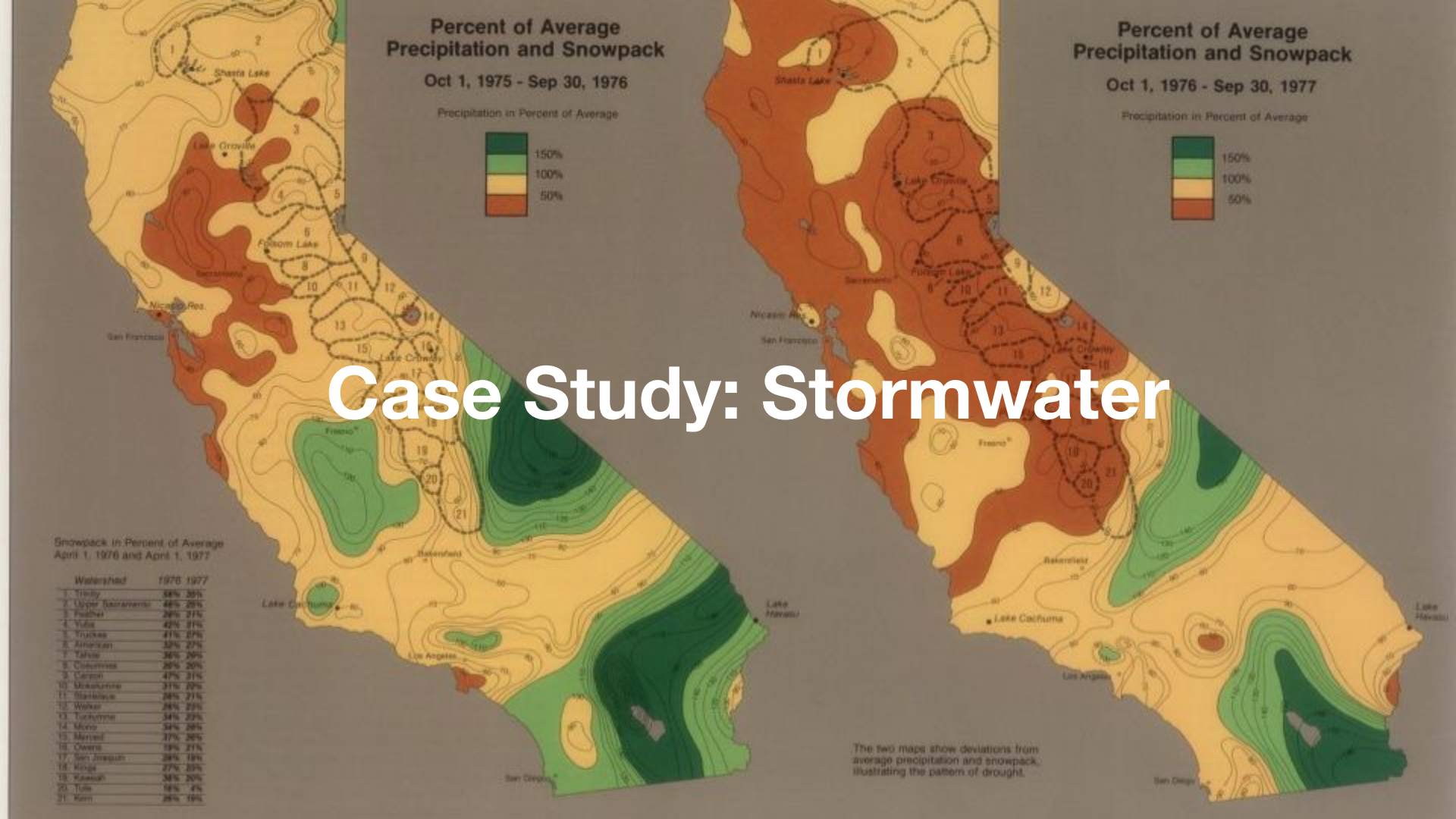

Case Study: Stormwater

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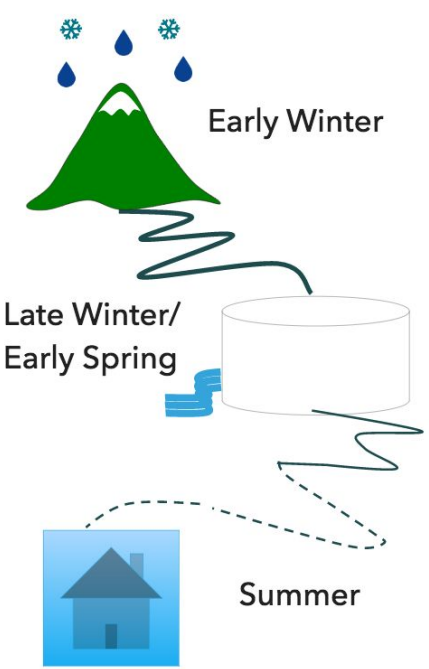
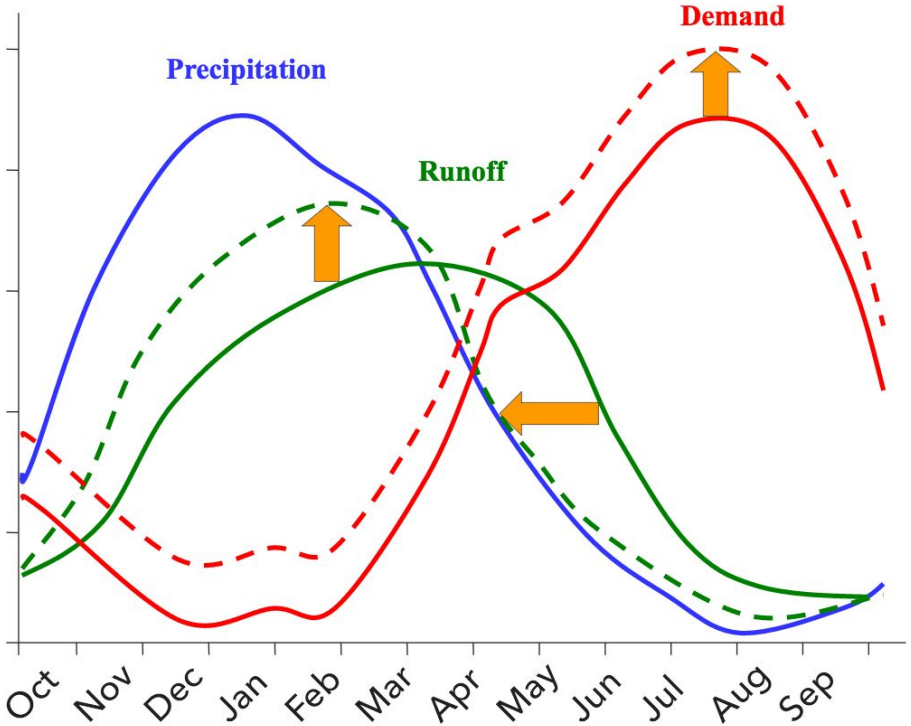
Climate change

Future





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Multiple benefits: mapping urban drool

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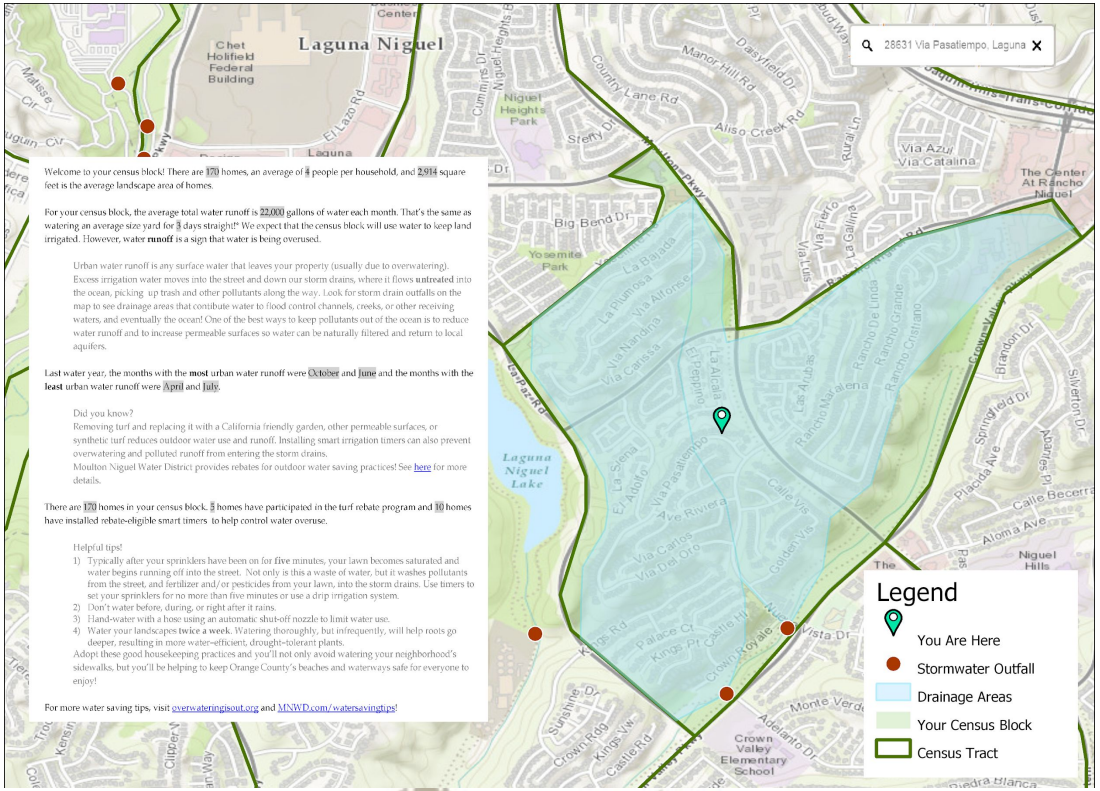

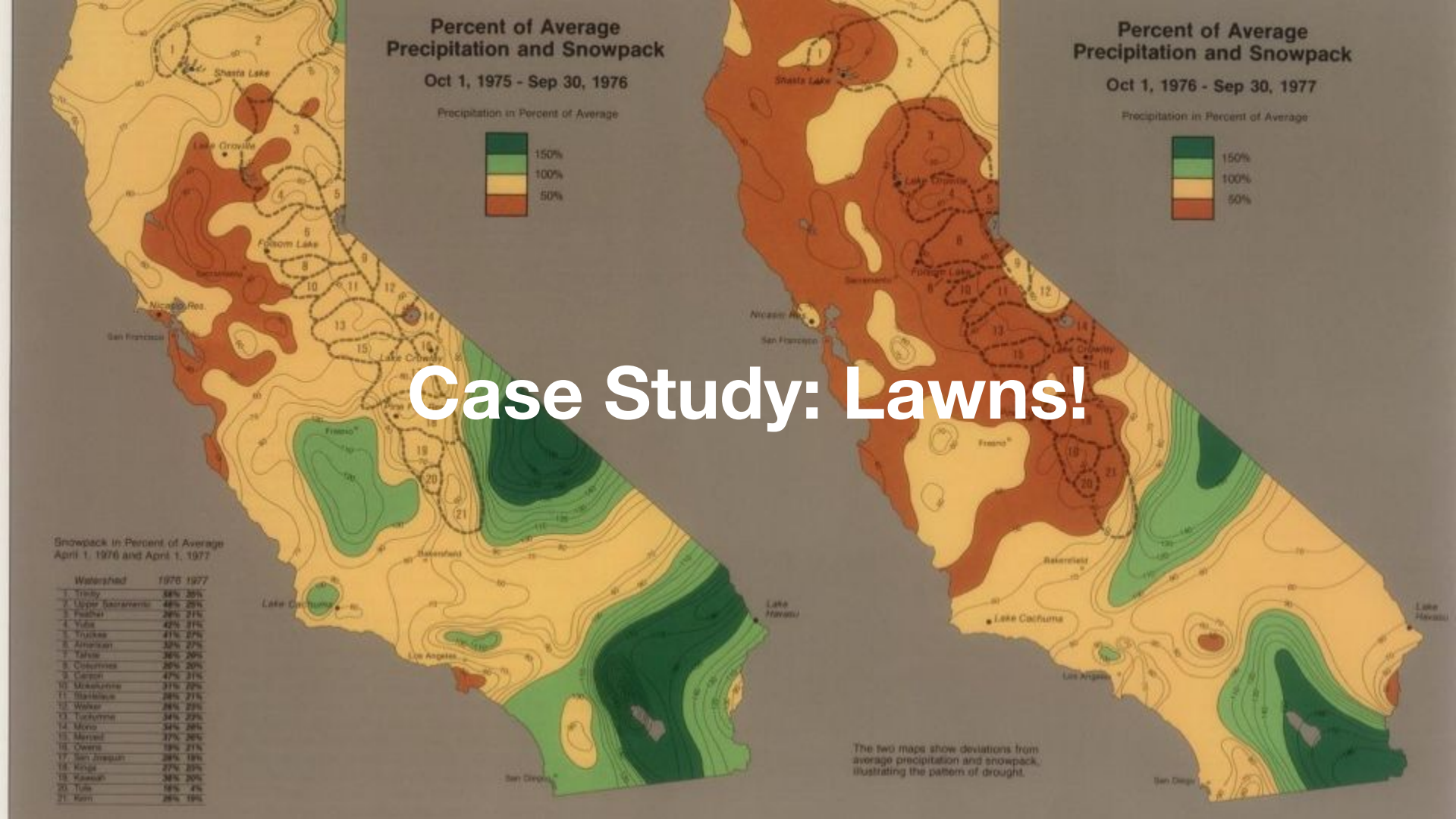

Case Study: Lawns!

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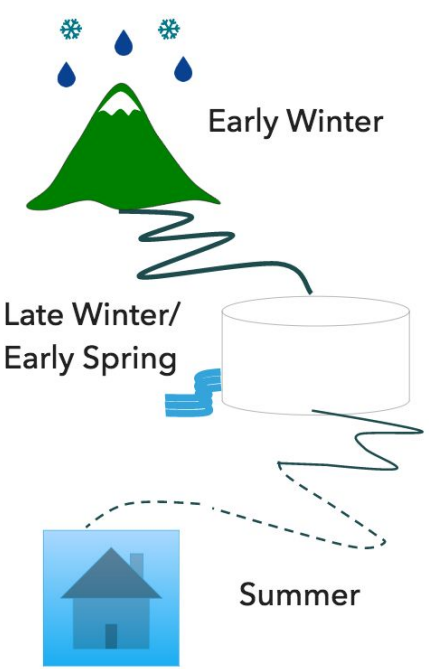
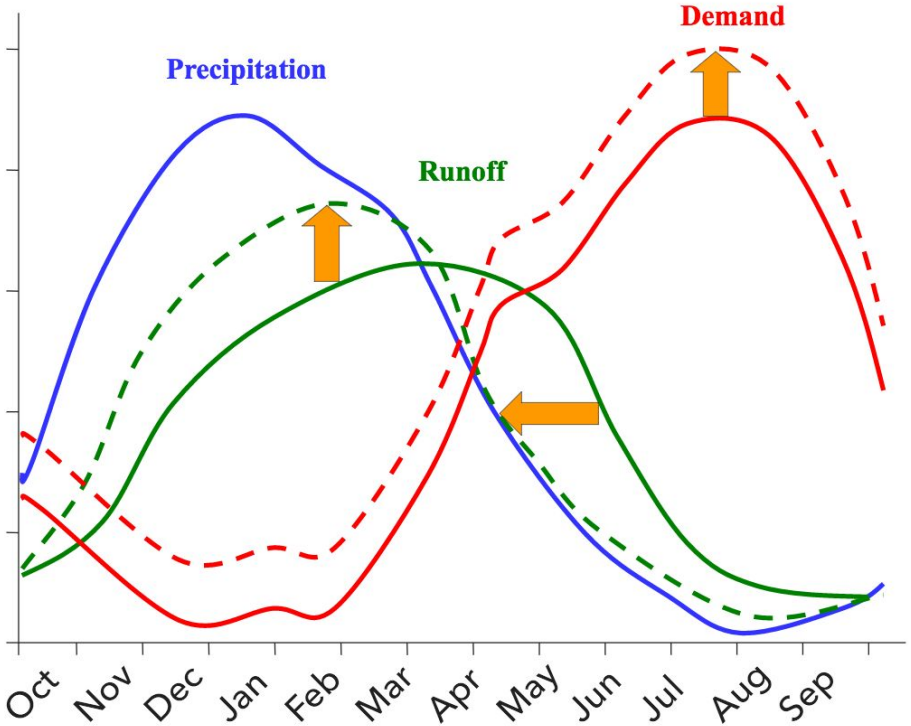
Climate change

Future





Google Street View Landscape Survey

Survey

- Using Google Street View, virtually walk every street in the study area, creating a record for any front yard where a lawn is not the primary landscape type.
- Also record data for front yards with lawns when the secondary landscape type is drought-tolerant.
- Geocode each record, generating a latitude and longitude for each address.

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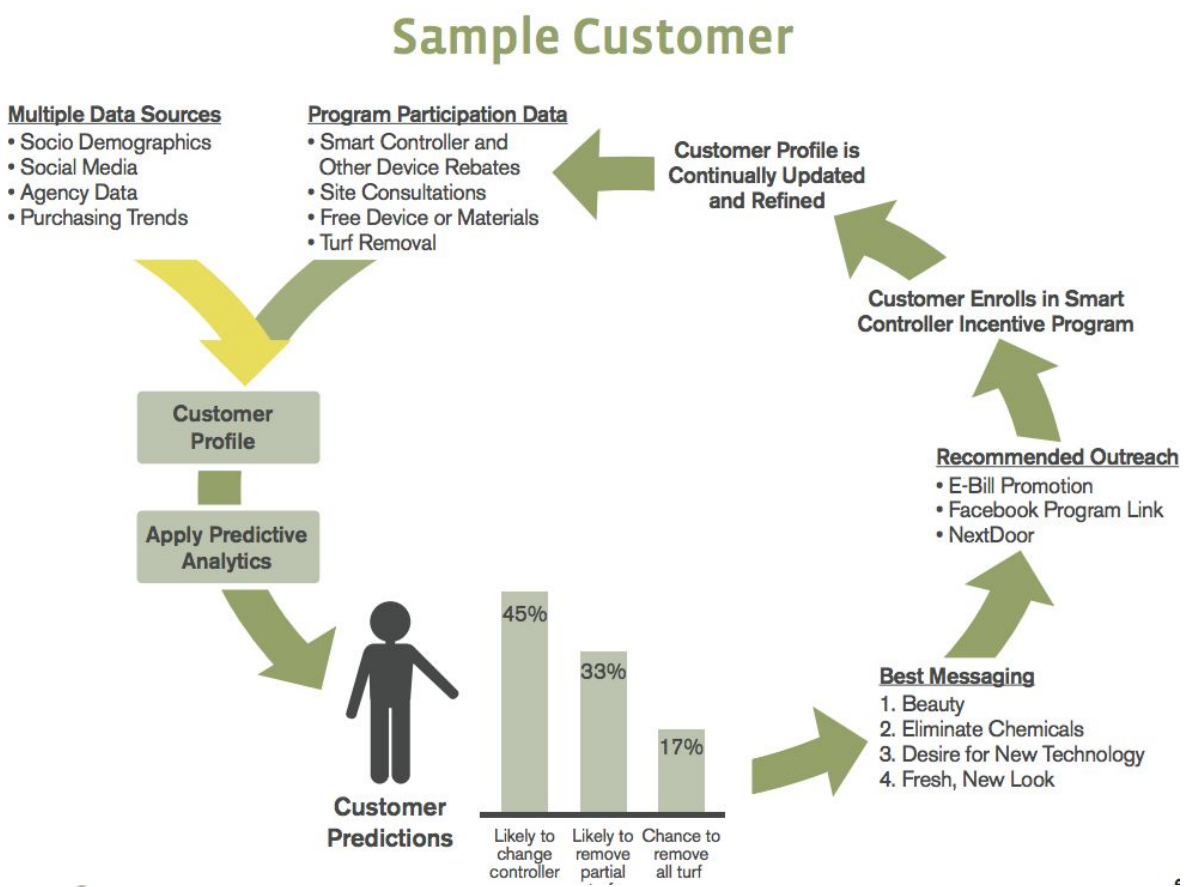
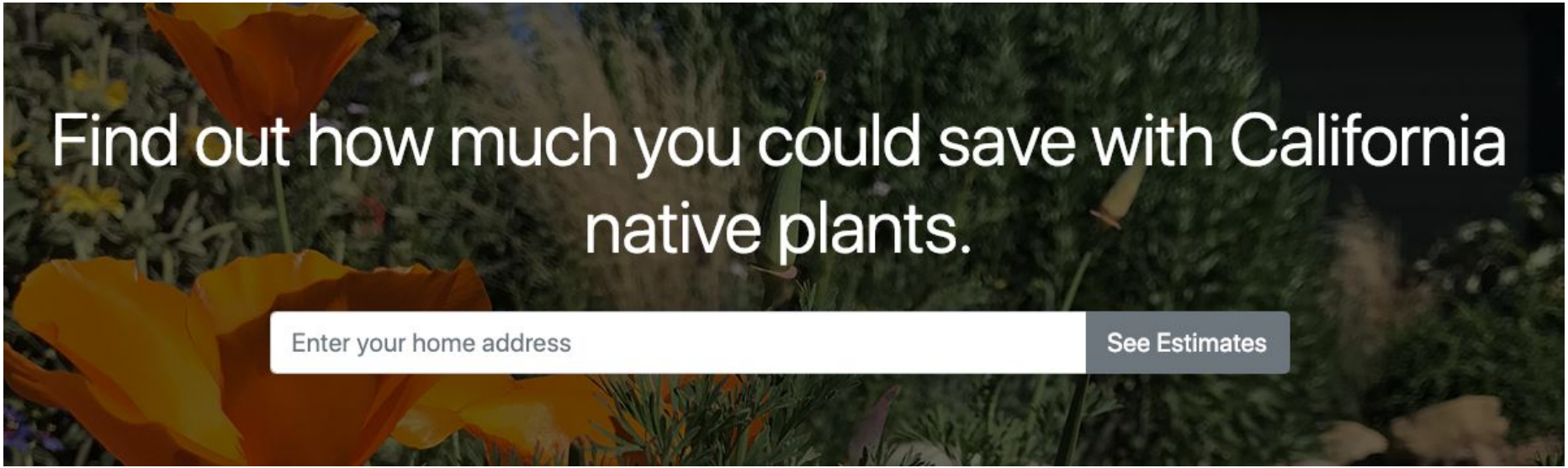
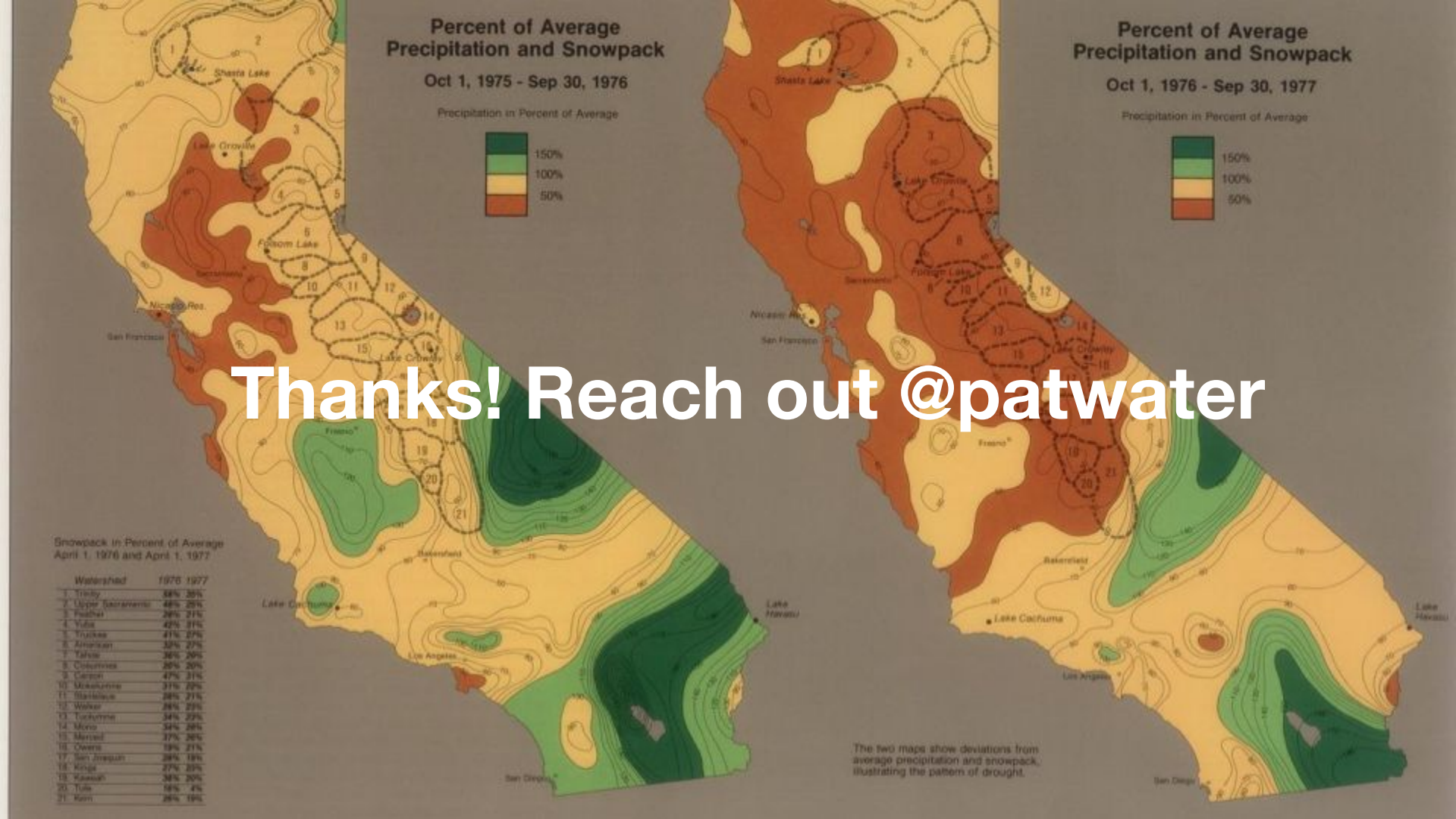
Parcel level landscape area data across CA

Market transformation is a generational process that requires ongoing measurement



FlipMyLawn.com





Thanks! Reach out @patwater

Business model: quasi-governmental nonprofit managing California's water usage data like a utility

bit.ly/manage_data_like_water

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