BUREAU OF RECLAMATION

CALIFORNIA DEPARTMENT OF WATER RESOURCES

# Climate Change Development: Reclamation and DWR Approaches

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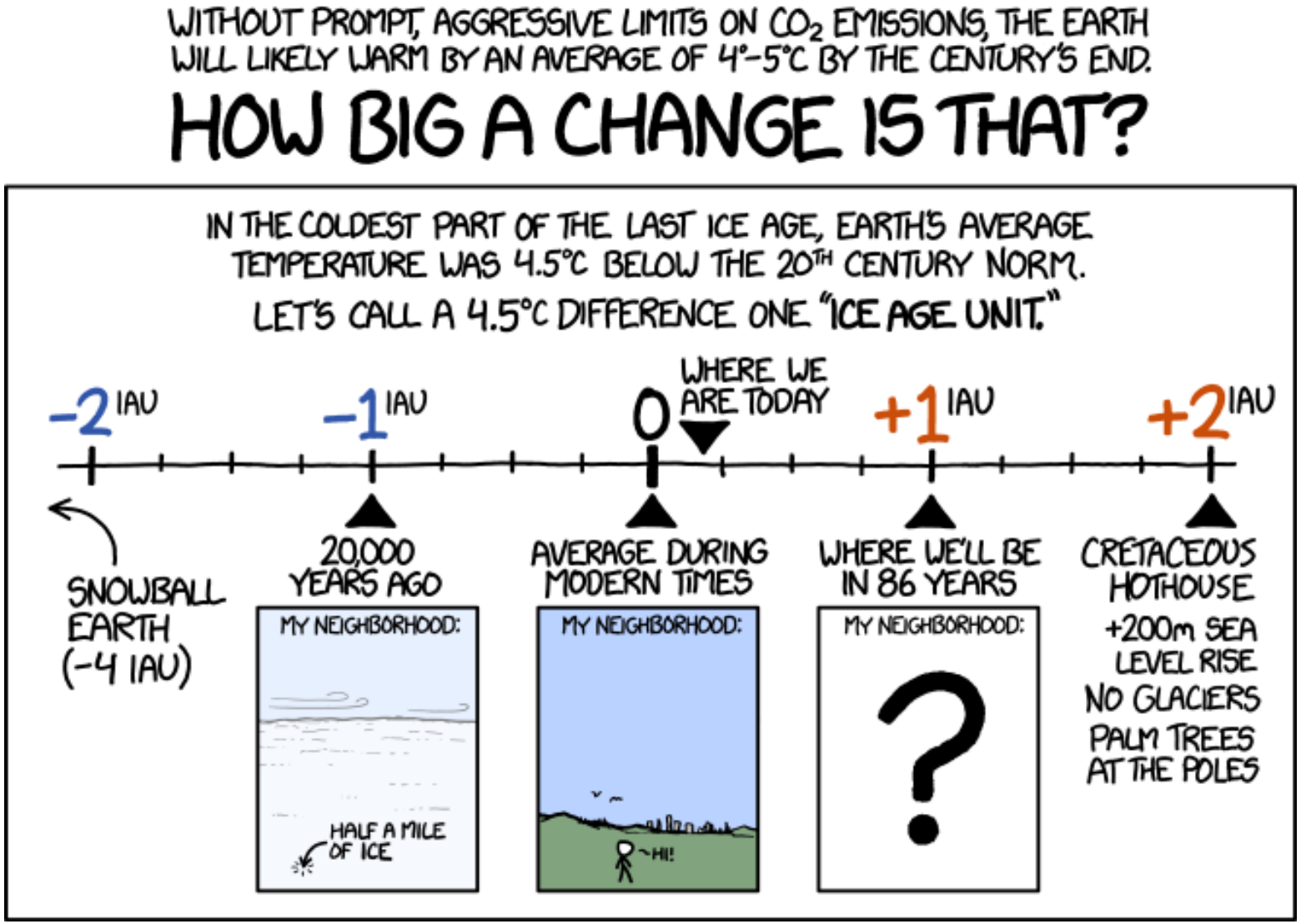
# Climate Change is Uncertain



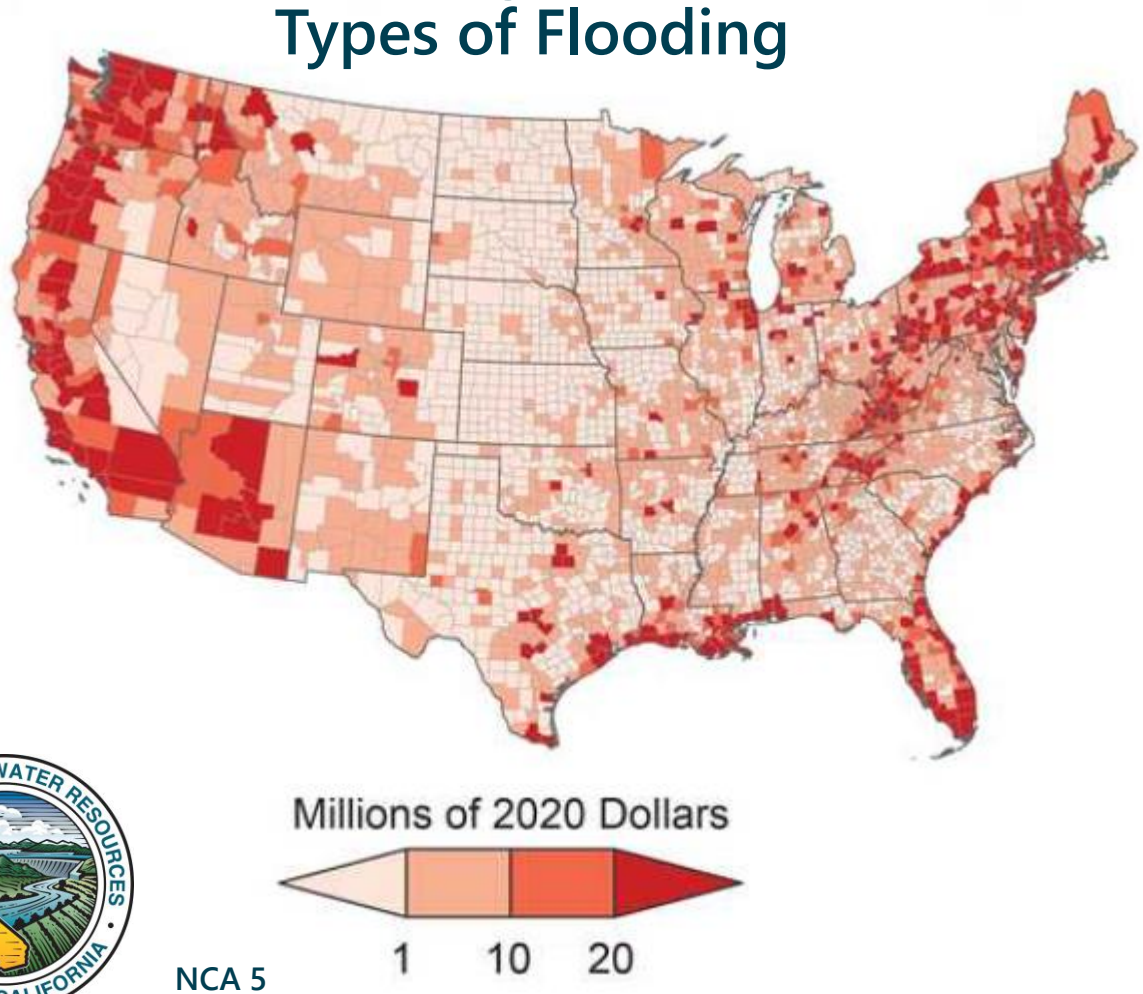

xkcd

# One Approach Across Two Agencies

- Reclamation and DWR are committed to building common tools and workflows, shared between agencies
- Shared tools are required because the:
  - Recognize the need for a common understanding for CVP/SWP operations
  - Make the most efficient use of limited development resources
  - Advance scientific understanding most quickly
  - Cross-train across agencies to build technical capacity

# Joint Technical Development

## Annual Average Loss from All Types of Flooding




NCA 5

- Focus areas
  - CalSim 3 input development
  - Climate uncertainty characterization
  - Weather generation
- Incremental building toward better understanding

# Moving Forward Together - One

1. Development of a workflow to be able to ingest any synthetic streamflow/climate scenario into CalSim3
   - Allows completely novel hydrologic sequences to be explored independent from the historical timeseries
   - Permits incorporation of hundreds of years of synthetic hydrology (in addition to the historical and historical adjusted/detrended timeseries) efforts
   - Adds ability to look at novel droughts and pluvials

# Moving Forward Together - Two

2. Improved hydrologic modeling, perhaps involving hybrid physical and ML/AI approaches
   - Understand groundwater resources for SGMA compliance
   - Improved understanding of potential dynamical climatic changes and how those may impact water supply and extreme precipitation events

# Moving Forward Together - Three

3. Increase temporal resolution in models to allow for more realistic representations of opportunities and adaptations that take advantage of flood flows
   - Helps to determine FloodMar potential
   - May not be necessary to answer all modeling questions

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