

# Atmospheric River Program for California's Public Sector

Parametric flood coverage  
powered by **Floodbase**

## Atmospheric Rivers Cost California over \$1 Billion Every Year and There's No Slowdown in Sight

While California's list of environmental and weather-induced exposures has always included common players like droughts, wildfires and earthquakes, there is a growing concern for atmospheric rivers and the serious risk they pose to the state's economy and infrastructure.

Historically, atmospheric rivers have broken extended periods of drought and brought relief to farmers, forests, and the general population; however, they can also cause extensive flooding, landslides and vegetation growth that leads to larger wildfires. Estimated annual damages from atmospheric rivers are expected to increase each year, with exposures expected to double this century. Over the past two years, federal support covered less than 1% of the estimated damages and economic losses from atmospheric rivers, and many of these funds have yet to be obligated to localities on the ground.

California's public sector is largely unprotected from damages caused by atmospheric rivers under traditional insurance policies, putting communities, critical facilities and local businesses at risk.



Amwins has partnered with Floodbase, an industry-leading flood data and insurance structuring platform, on a flood program with payouts that scale with the magnitude of atmospheric rivers. The program offers flexible pricing with rapid payouts that governments, JPAs, and other risk pools can use at their discretion to assist with emergency response, lost tax revenue, business interruption and more.



## Rising Waters, Rising Costs: Sectors Illustrate the Urgent Need for Flood Protection in California

In California, many municipalities operate in high-exposure locations and lack proper flood coverage, leaving them out of pocket for damages or subjected to lengthy adjustment periods when losses occur.

Economic loss due to flooding decreases tax revenue and affects every sector and industry, including:



**City governments:** Governments are subject to losses from public infrastructure property damage, relief programs, lost tax revenue, and budget shortfalls, all of which can impact sovereign credit ratings.



**Banking:** Major flooding puts loan holders at risk of default when banks underprice risk.



**Agriculture:** Lucrative farmlands across the state are uncovered by public insurance and extremely sensitive to floods.



**State and national government:** Disaster response following a flood event requires mobilizing people and equipment, overtime pay and capital-intensive utility outages.



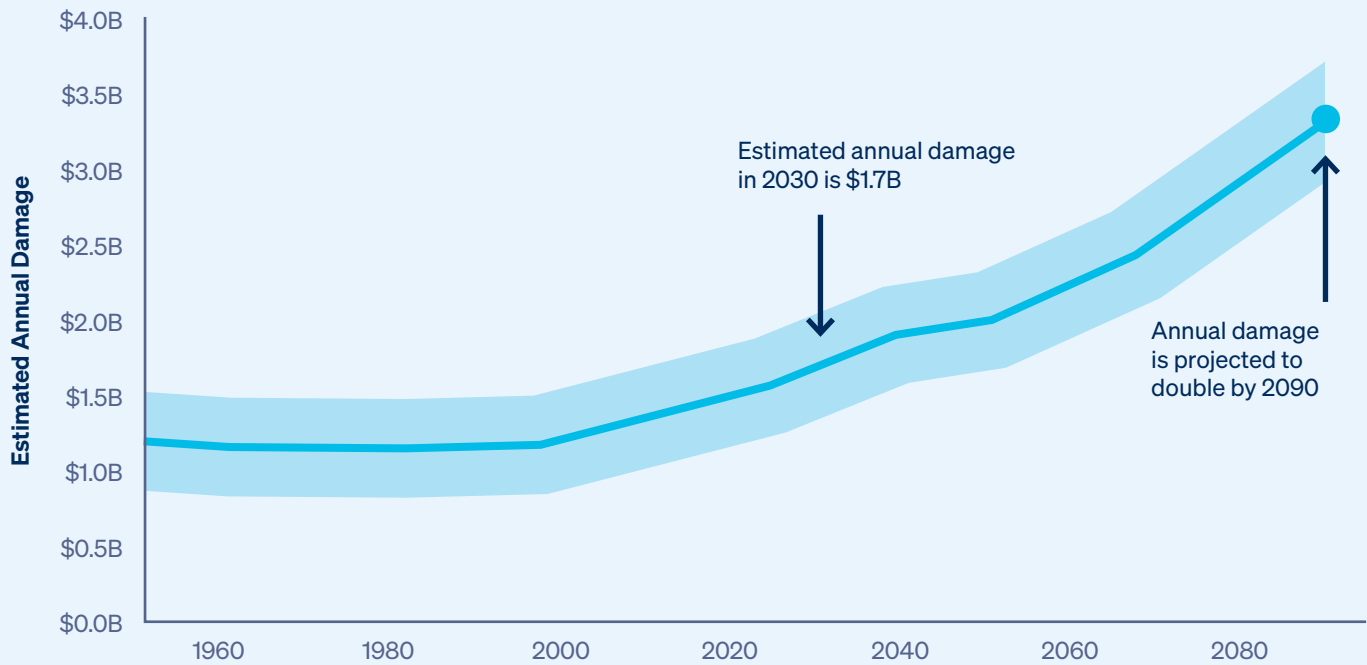
**Tourism & leisure:** Flooding reduces collectible tax revenue from tourism and small business revenue, all of which is uncovered by NFIP policies.



**Manufacturing:** Lost inventory and damage to facilities and equipment causes business interruption that NFIP policies do not cover.

## Damage from Atmospheric Rivers is Projected to Increase

Estimated average annual damage due to atmospheric rivers in the western US is under a high emissions scenario



**Note:** The shaded area shows the confidence interval of 2.5% to 97.5%

Sources: Corringham et al. Nature; Center for Western Weather and Water Extremes at University of California, San Diego

## Highlights: Capacity Overflow and an Immediate Stream of Funds

### Expanded protection for California municipalities that scales with the magnitude of the event:

- Average Limits: \$1-10M
- Minimum Premium: \$65k
- "A+" AM Best Rated paper
- Payout triggers when a predetermined percentage of the municipality is covered by flood water. Payouts scale linearly with the magnitude of flooding until the limit is reached.

### Holistic flood cover for the public sector:

- Quick access to capital for disaster response, including infrastructure damage, cleanups and temporary unemployment.
- Cover lost revenue, such as forfeited sales tax from reduced tourism, property value reduction and income tax from businesses.
- Use proceeds to fund deductible buy-down for traditional insurance products.

### Payout speed and flexibility:

- Policies pay out within days of an atmospheric river event and can be used at the insured's discretion, including for community relief, critical facility repair, lost tax revenue, and more.

### Personalized pricing options:

- Basic Coverage
  - Coverage for extreme catastrophic flood events
  - Most affordable tier
- Expanded Coverage
  - Coverage for extreme catastrophic flood events and additional events of concern
  - Pricing dependent on number of events covered

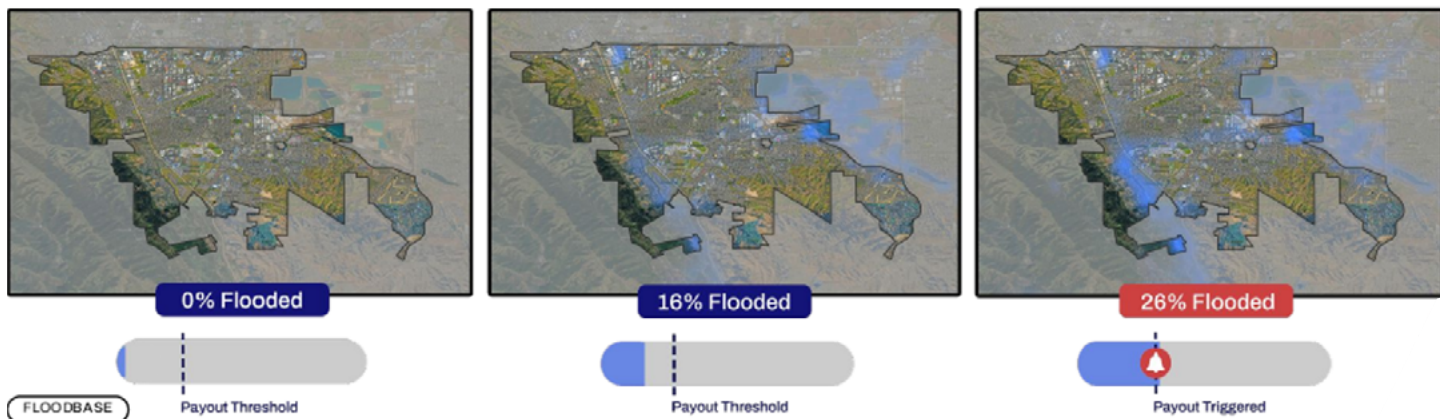
## How Our Program Compares to Current Coverage Options

Losses from flooding	Covered by NFIP, private, and excess policies	Covered by Floodbase & Amwins program
- Exposure to structures and their contents	✓	✓
- Impacted public infrastructure and critical facilities	⚠	✓
- Lost tax revenue due to decreased property value, closed businesses, and reduced tourism	✗	✓
- Disaster response dollars for community response and recovery	✗	✓

## How it Works: The Design of the Atmospheric River Program

- 1. The insured area is a boundary drawn around municipal borders.
- 2. The presence of flood water is mapped and measured by Floodbase every hour within this boundary.
- 3. When the amount of flooding within the boundary exceeds the predetermined amount (threshold), the payout is made.

*For illustrative purposes only.*



## Historic Event Example: Weathering the Storm: The Economic Toll of Atmospheric Rivers in California

In April 2023, FEMA issued a disaster declaration across the state of California for atmospheric river-induced damages. Public assistance totaled \$37.9 million, but delivery of 78% of funds was delayed, inhibiting recovery activities in affected counties and municipalities for up to a full year. Delayed recovery efforts spelled disaster for impacted communities like Pajaro in Monterey County which incurred \$300 million in damages after a levee breach displaced 3,500 primarily low-income residents.

Sources: FEMA public assistance data, <https://www.prfma.org/risk-management>

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