

The intersection of capital markets real estate and sustainability

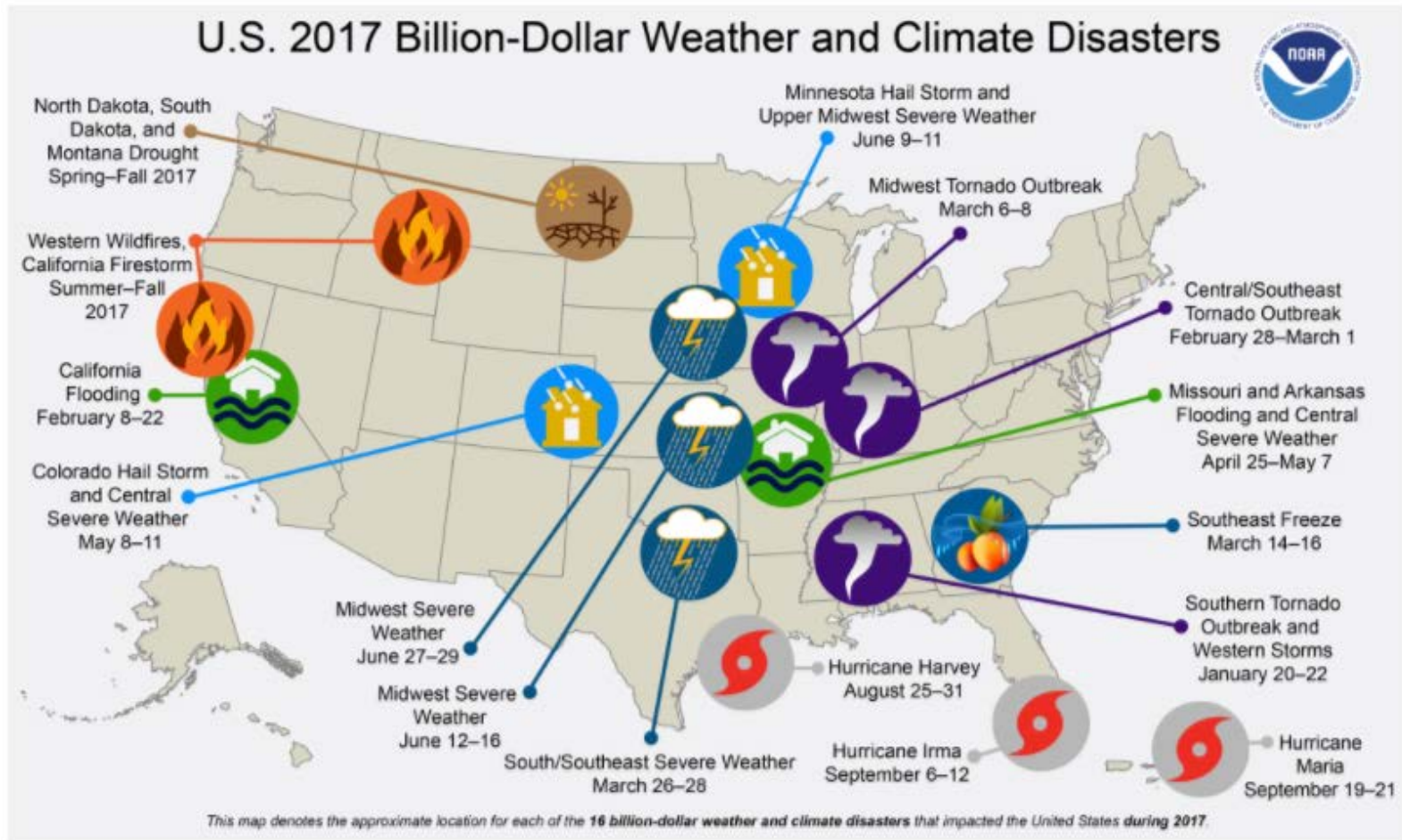
ULI Fall Meeting

Boston Convention and Exhibition Center

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October 10, 2018

2017: Weather and climate disasters cost **\$306 billion** in the U.S.



Sources: NOAA; Mashable.com
Jan. 8, 2018

Falling Property Values based on SLR alone

In the US, **\$1 Trillion in properties** threatened by SLR by 2100 ¹

Of the roughly 14,000 **commercial** properties at risk on US coasts within the **next 30 years**, more than one-third are in **Florida** and **New Jersey**. ¹



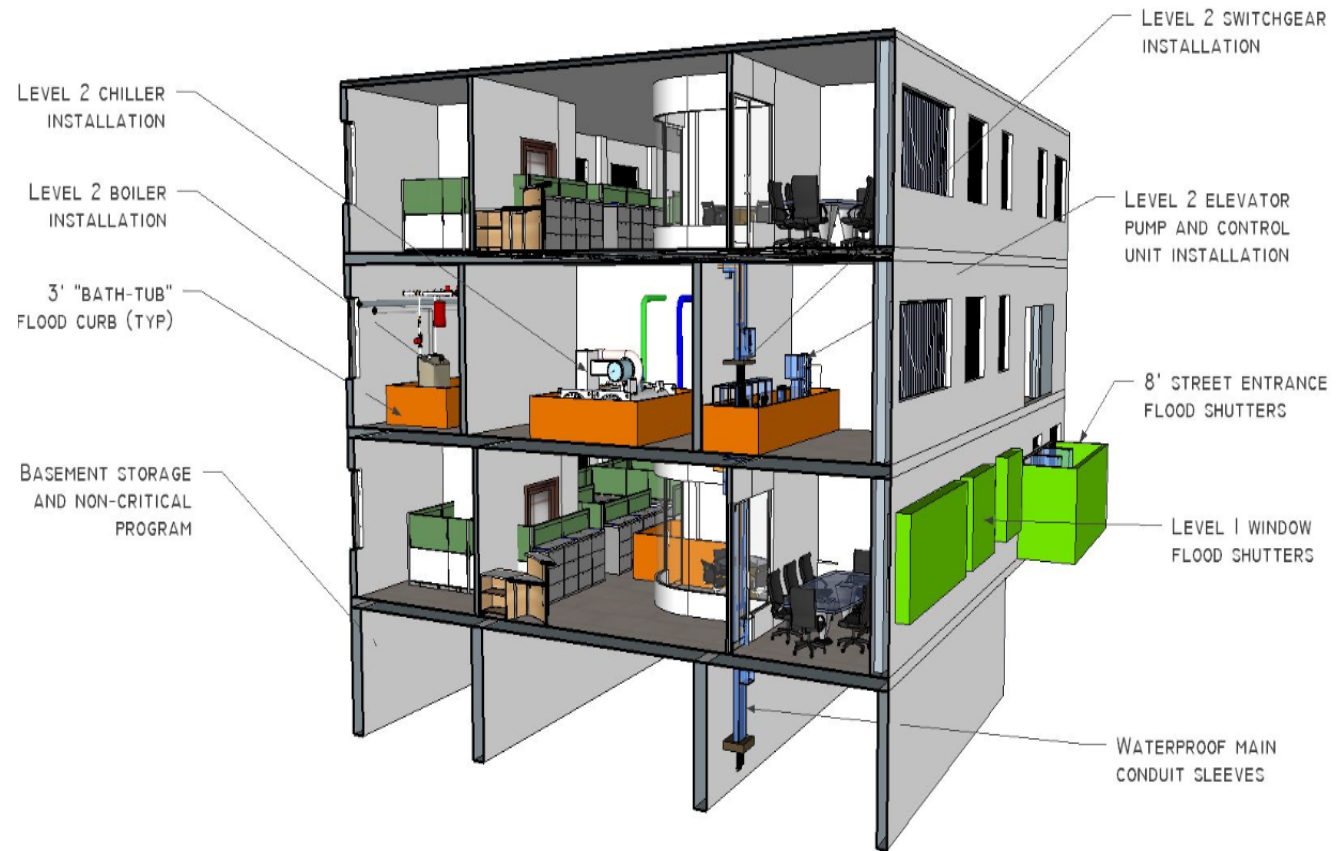
Today, properties exposed to SLR are already selling at a **7% discount** ²

¹ Zillow and Union of Concerned Scientists, 2018. (<https://www.ucsusa.org/press/>)

² Bernstein et al. 2018; Journal of Financial Economics (<https://ssrn.com/abstract=3073842>)

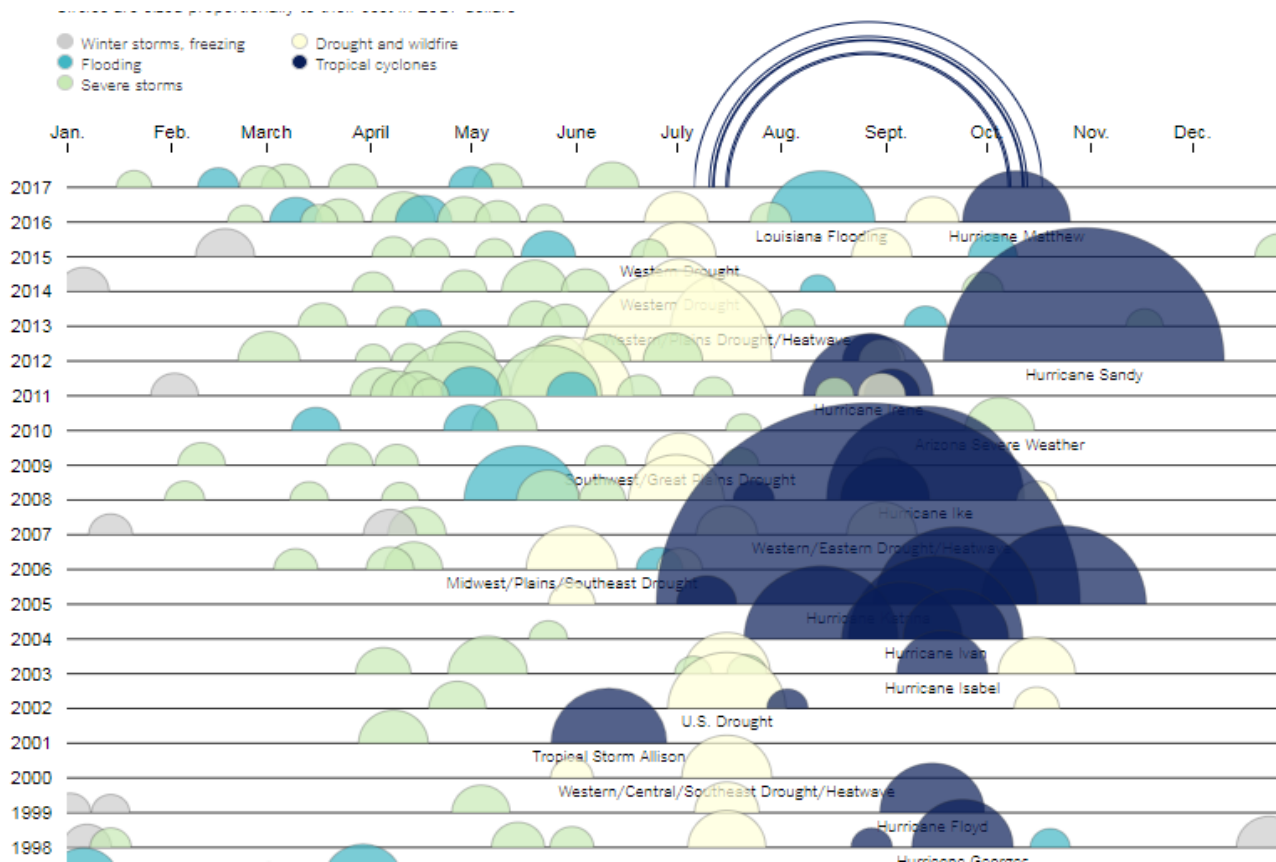
Asset and Portfolio-level solutions

- \$1 invested in building resilience and reducing exposure saves \$4 in disaster response and recovery
- \$1 invested in resilience saves \$4-7 in response and \$5-10 in avoided economic losses
- \$1 on disaster risk reduction saves \$7 in response activities
- \$1 on disaster preparedness saves \$7-10 on response
- \$1 in preparedness is worth \$15 in disaster relief efforts



4 Overall ROI equals \$3-15 per dollar invested over a 30 year period.

Impact to supporting infrastructure



<https://www.nytimes.com/interactive/2017/09/01/upshot/cost-of-hurricane-harvey-only-one-storm-comes-close.html>

Cost to US GDP
\$3.9
 trillion by 2025

Lost Business Sales
\$7
 trillion by 2025

Lost Jobs
2.5
 million jobs in 2025

Cost to Families
\$3,400
 per year

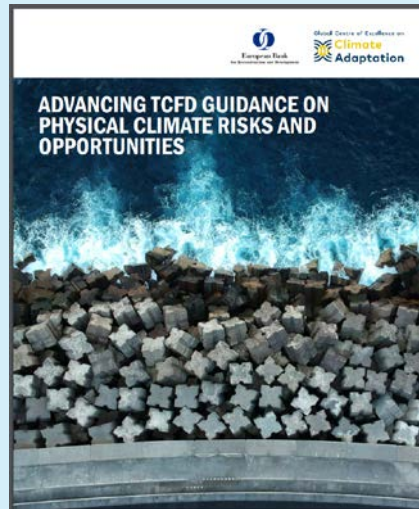
<http://www.asce.org/failuretoact/>

Key Climate Market Drivers for Real Estate

MOODY'S
INVESTORS SERVICE

S&P Global
Ratings

Credit Ratings



TCFD | TASK FORCE ON CLIMATE-RELATED
FINANCIAL DISCLOSURES

Financial Disclosure

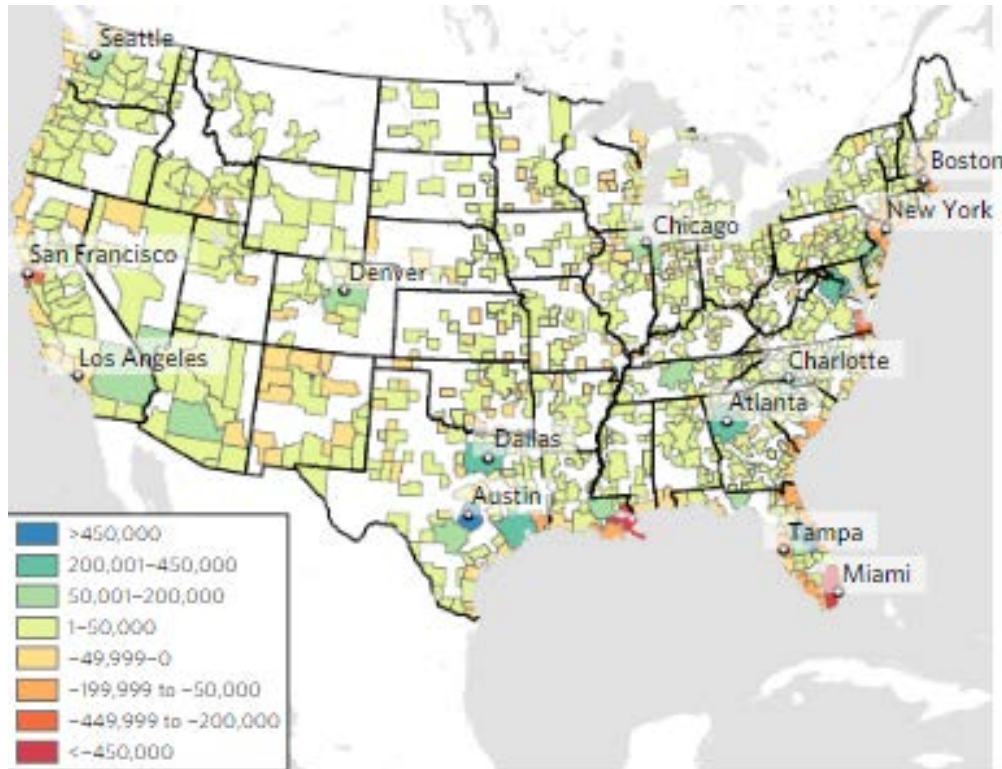
New insurance products
Resilience Bonds
Pooling risk in new ways

Removing coverages
Property/Flood
Force Majeure

**Readjusting time horizons
and climate projections**

Insurance

Projected Climate Migration within the US by 2100



Where people are *moving from*:

1. Miami-Fort Lauderdale-West Palm Beach
2.5 million people leaving
2. New Orleans-Metairie, LA
500,000 people leaving

Where people are *moving to*:

1. Austin-Round Rock, TX
819,000 people
2. Orlando-Kissimmee-Sanford, FL
461,000 people
3. Atlanta-Sandy Springs-Roswell, GA
321,000 people

Projected Climate Migration within the US by 2100



Top ten **outflow** states

- Florida
- Texas
- New York
- California
- Louisiana
- New Jersey
- North Carolina
- Georgia
- Massachusetts
- South Carolina
- Virginia