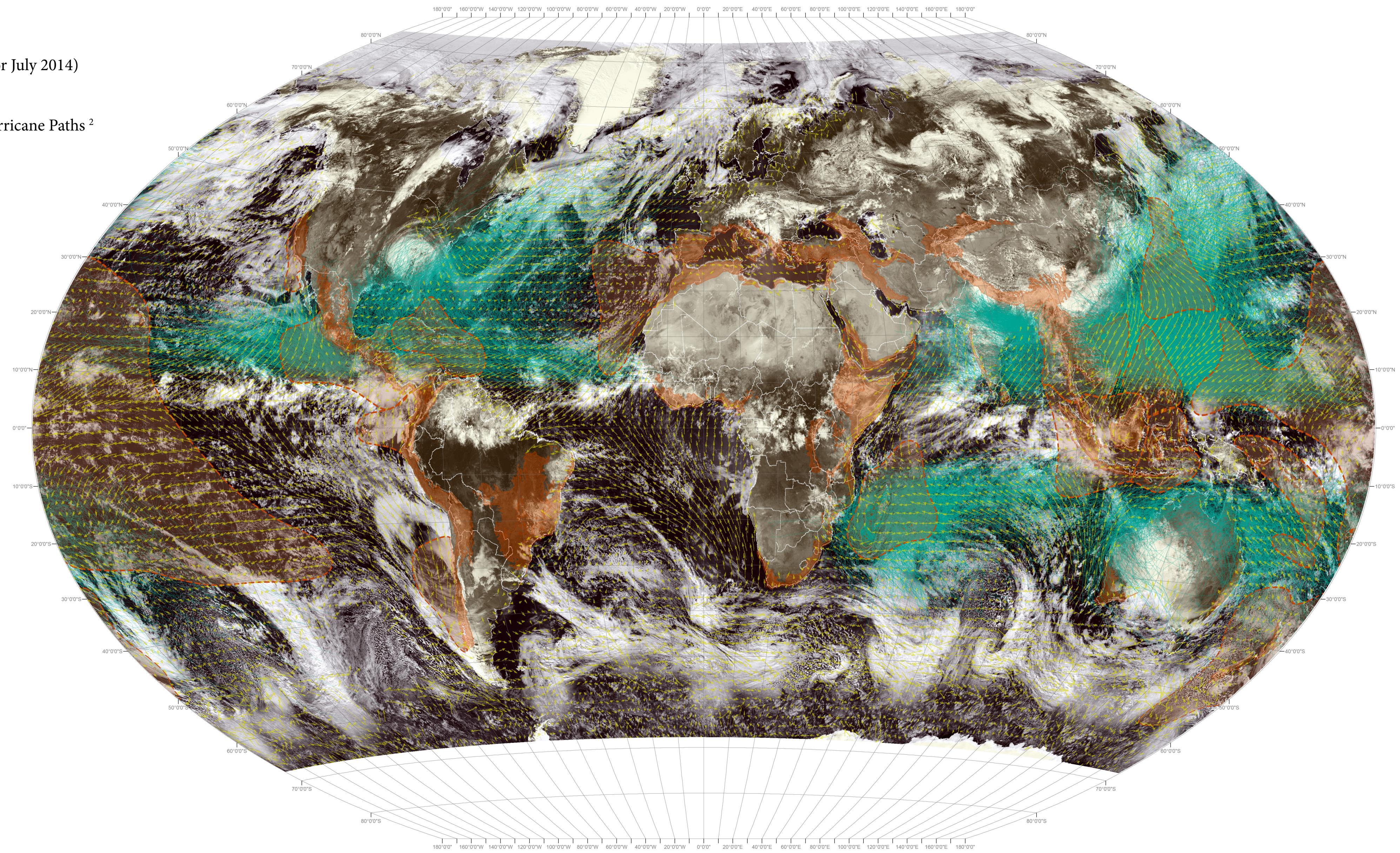


# ATMOSPHERIC CURRENTS

— Wind Direction<sup>1</sup>  
(average wind path for July 2014)

— Tropical Storm & Hurricane Paths<sup>2</sup>  
(1848-2010)

■ Hotspots<sup>3</sup>



1. NOAA, 2014

2. NOAA, 2014

3. Conservation International, 2011

4. NASA, 2008

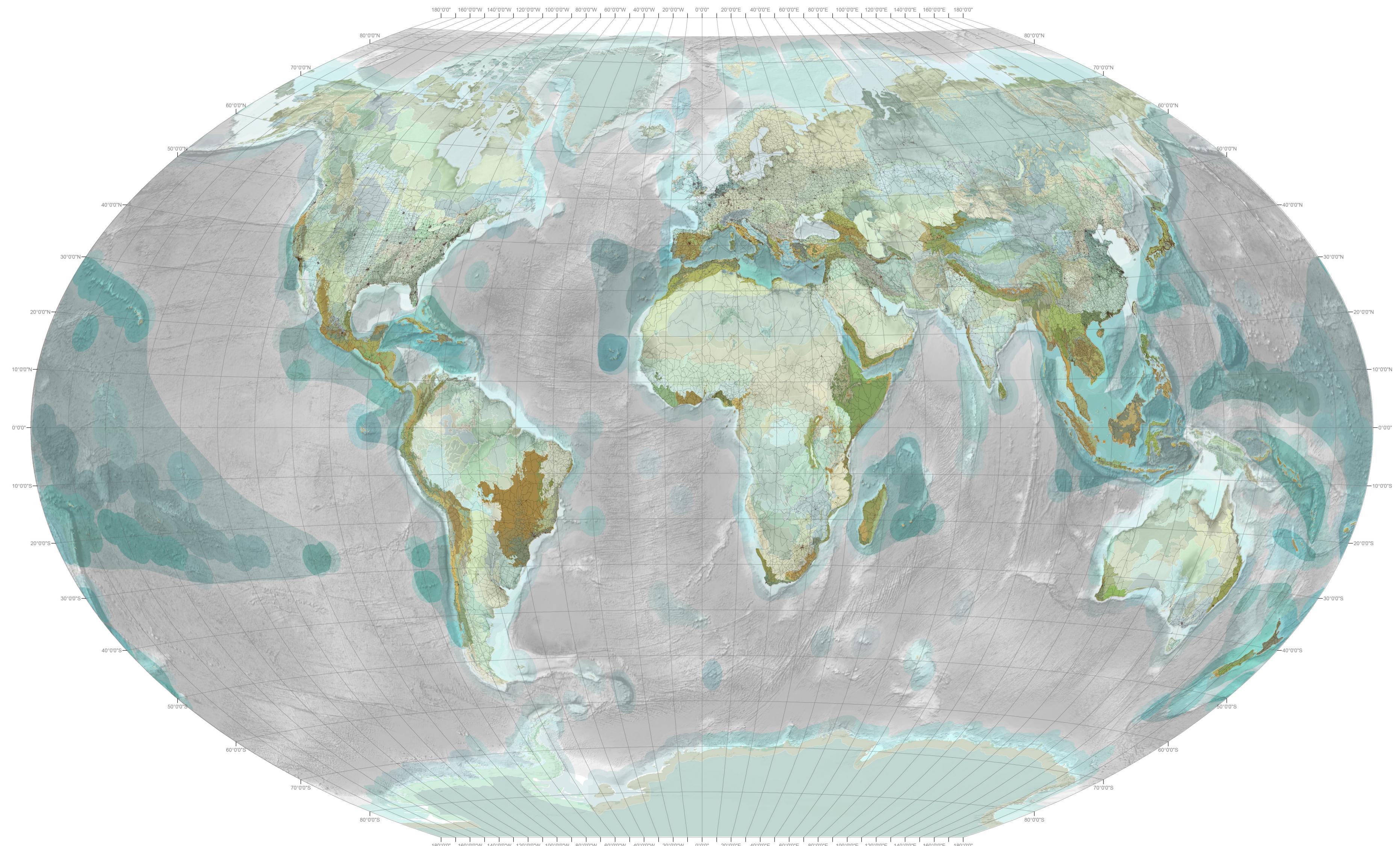
# ECO-REGIONS

The World Wildlife Federation defines an ecoregion as a “large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions”.<sup>1</sup>

An ecoregions is a biome broken down even further.

Nearly half of the Terrestrial Ecoregions (425) are within the Hotspots.<sup>2</sup>

867 TERRESTRIAL ECOREGIONS



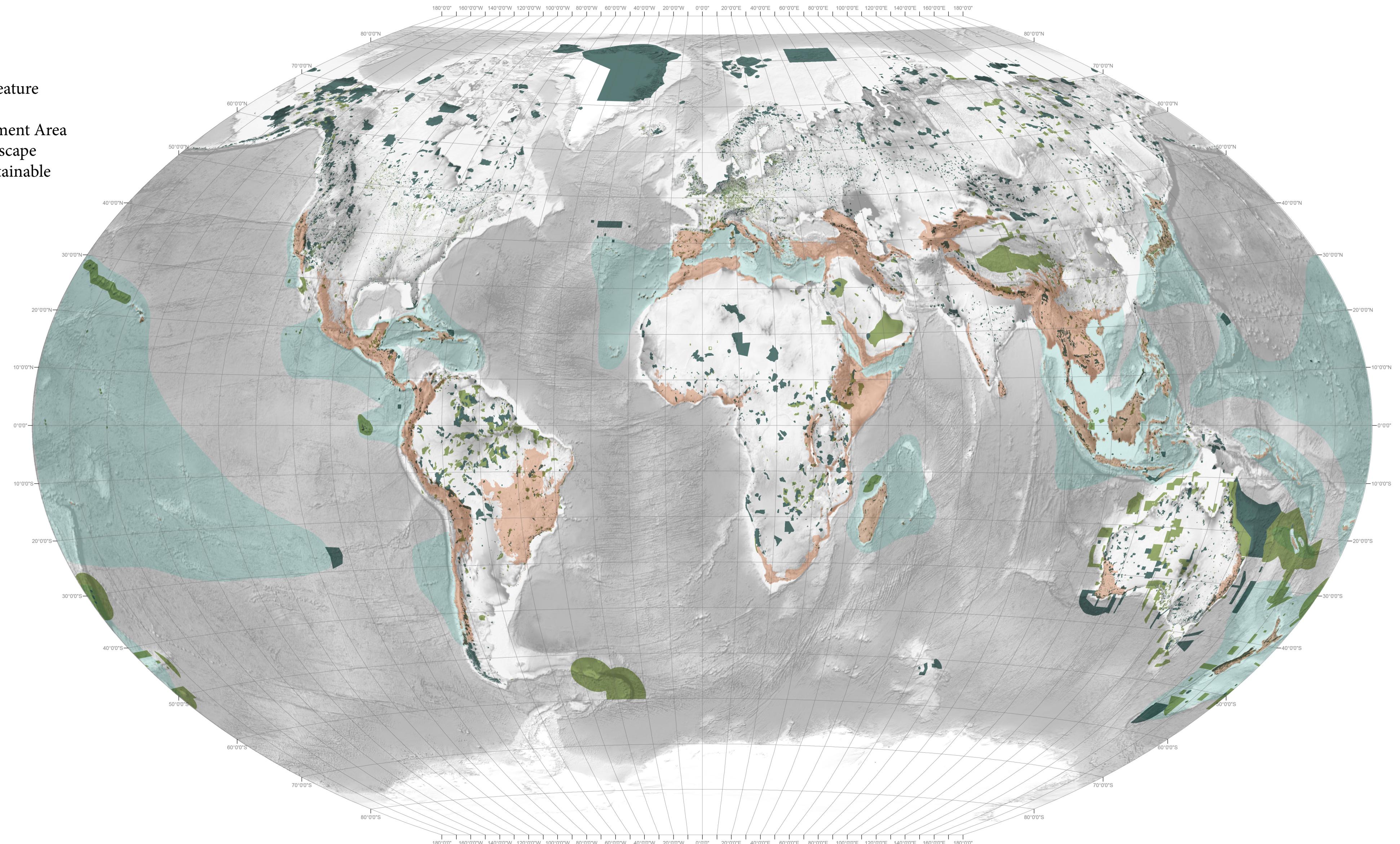
1. World Wildlife Federation, 2014

2. Conservation International, 2011

# PROTECTED AREAS

IUCN CATEGORIES I-VI<sup>1</sup>

- Ia. Strict Nature Reserve
- Ib. Wilderness Area
- II. National Park
- III. Natural Monument or Feature
  
- IV. Habitat/Species Management Area
- V. Protected Landscape/ Seascapes
- VI. Protected Area with Sustainable Use of Natural Resources
  
- Terrestrial Hotspots<sup>2</sup>
  
- Marine Hotspots



1. IUCN, 2014

2. Ramsar Convention, 1971

3. Conservation International, 2011

# HEALTH OF WATERS

## FRESHWATER QUALITY (major river basins, 2013)<sup>1</sup>

measured by percent upstream wastewater discharged, percent upstream protected areas



good quality >>> very poor quality

## HUMAN IMPACT ON MARINE ECOSYSTEMS (2008)<sup>2</sup>

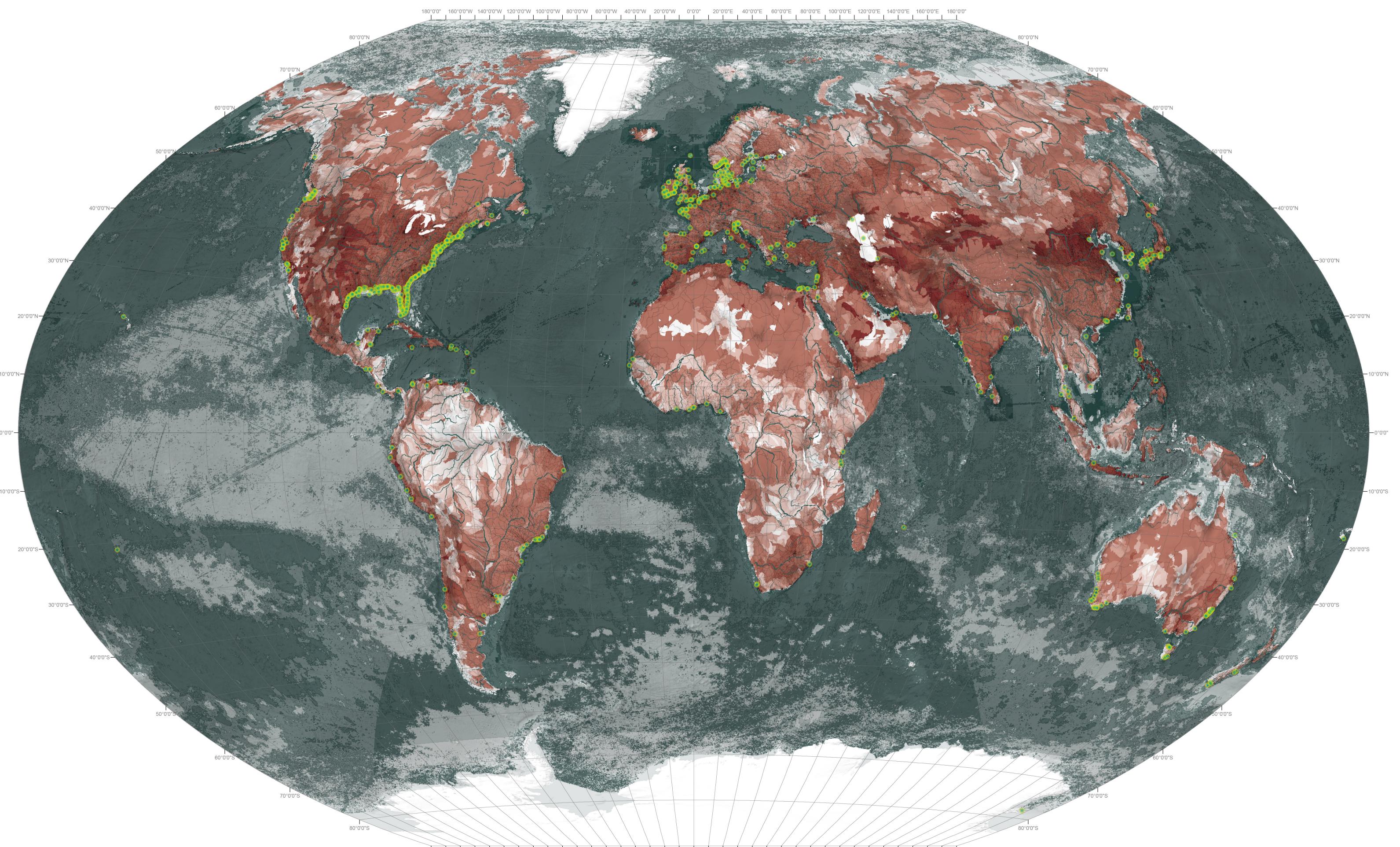
fishing, pollution, nutrient input, ocean acidification, climate change,



shipping & population pressure

## MARINE DEAD ZONES (eutrophication & hypoxia, 2011)<sup>3</sup>

- 762 coastal areas affected by nutrient overloading resulting in depleted oxygen, algae blooms & fish kills



1. World Resources Institute, 2013

2. Halpern, Benjamin S., et al., 2008

3. World Resources Institute, 2013

# MEGA-STRUCTURES

## LINEAR ENGINEERING

Canals +

Tunnels +

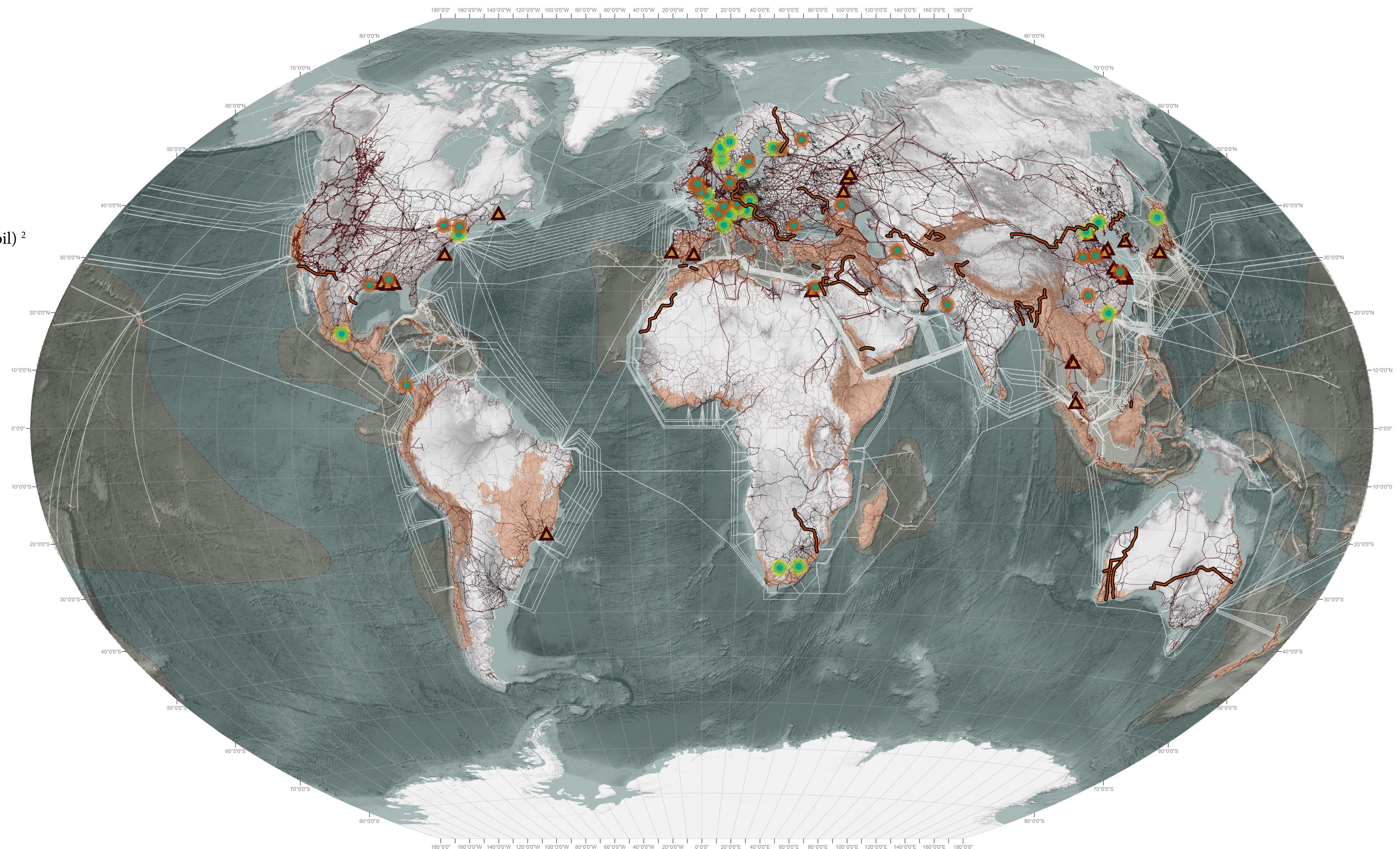
Bridges +

Walls & Fences +

Submarine Cables <sup>1</sup>

Pipelines (natural gas & oil) <sup>2</sup>

Hotspots <sup>3</sup>



1. TeleGeography, 2014

2. see references for multiple sources

3. Conservation International, 2011

+ compiled from various sources online

# SEA LEVEL RISE

## SEA LEVEL RISE BY 2100

Scientists project a .74 meter sea level rise by 2100 <sup>3</sup>

115,585,818 or 1.2% of the world's population will be displaced <sup>4</sup>

(at 1 meter rise)

AFRICA: 35,290,256 or 1.7%

ASIA: 61,063,350 or 1%

OCEANIA: 265,306 or .6%

EUROPE: 12,884,349 or 2.9%

NORTH AMERICA: 3,409,487 or .5%

SOUTH AMERICA: 2,683,070 or .4%

421,172 sq km or .3% of land on earth will be lost <sup>5</sup>

## SEA LEVEL RISE WHEN ALL THE ICE CAPS MELT

Scientists project an 80.32 meter sea level rise if all the ice caps melt

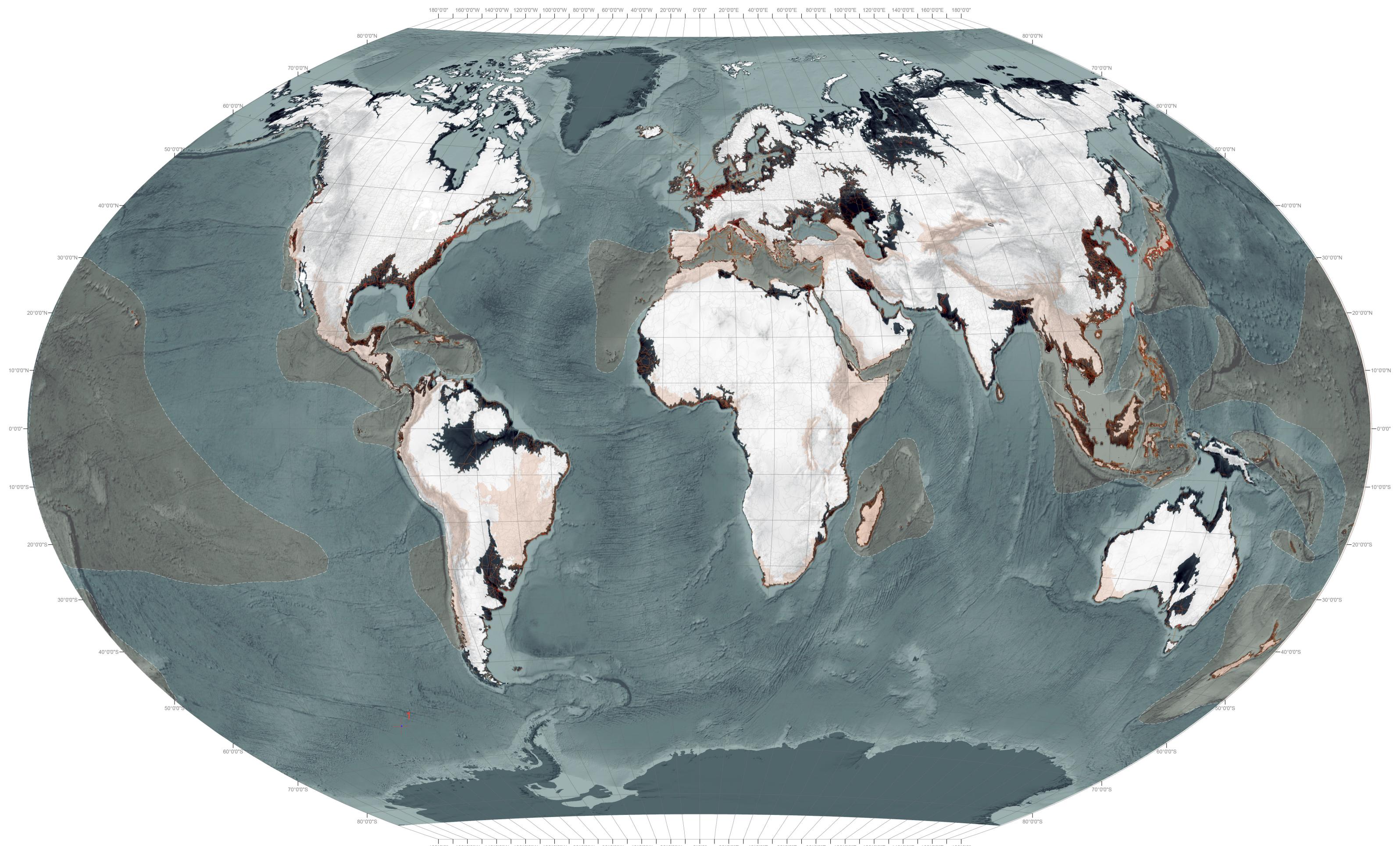
■ 80.32 meter rise (all ice caps melted) <sup>1</sup>

Antarctica, Greenland, other ice caps, ice fields & valley  
glaciers

■ Inundated Urban Areas

50 large cities displaced

■ Hotspots <sup>2</sup>



1. Poore, R.Z., et al., 2011

2. Conservation International, 2011

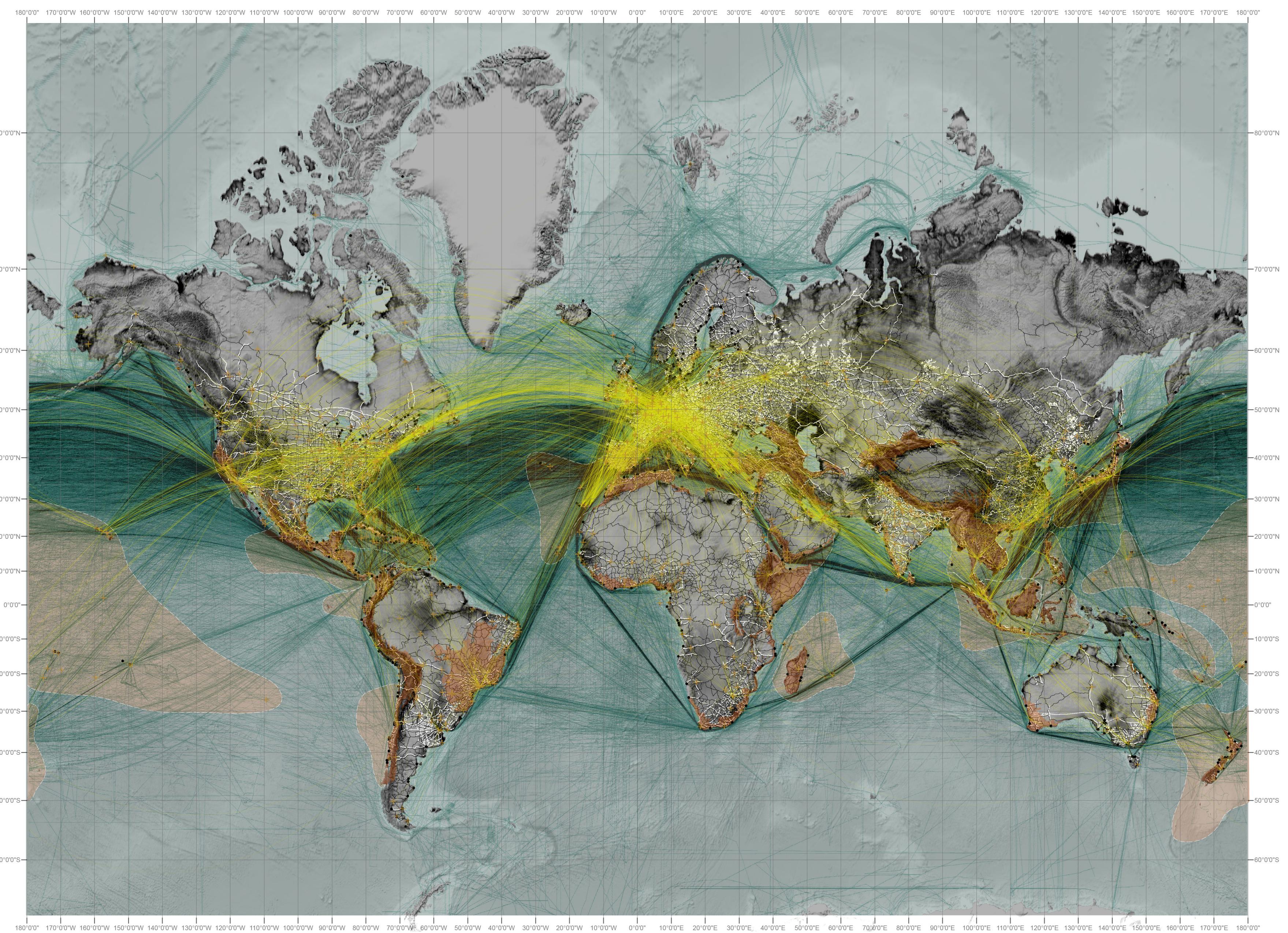
3. IPCC, 2013

4. CIESIN/ Columbia University, 2013

5. Ibid.

# HUMAN MOVEMENT TRANSPORTATION NETWORKS

- + Airports<sup>1</sup>
- Flight Routes<sup>2</sup>
- Ports<sup>3</sup>
- Shipping Routes<sup>4</sup>
- Major Roads<sup>5</sup>
- Rail<sup>6</sup>
- Hotspots<sup>7</sup>



1. Natural Earth, 2014

2. OpenFlights.org, 2014

3. Natural Earth, 2014

4. National Center for Ecological Analysis & Synthesis, 2014

5. Natural Earth, 2014

6. Ibid.

7. Conservation International, 2011

# CLIMATE CHANGE

PROJECTED SURFACE TEMPERATURE CHANGES 2081-2100

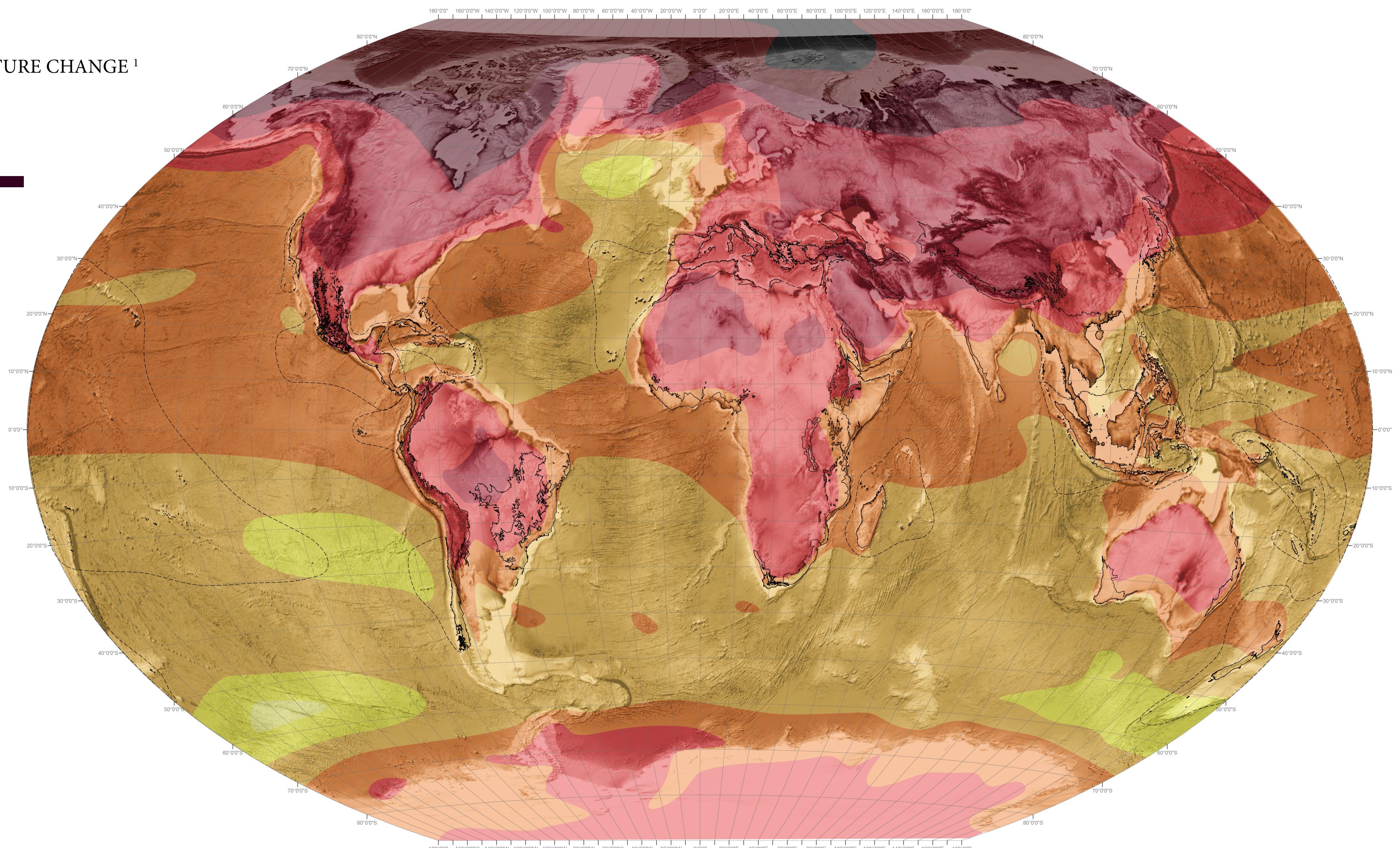
GLOBAL AVERAGE TEMPERATURE CHANGE<sup>1</sup>

(based on 1986- 2005 temperatures)

RCP8.5 High Emissions Scenario

1 >>>>> 11° centigrade

— Hotspots<sup>2</sup>



1. IPCC, 2013

2. Conservation International, 2011

# SEISMIC ACTIVITY

## EARTHQUAKES, VOLCANOES

Earthquakes (magnitude)<sup>1</sup>

<5.0 >>> >9.0

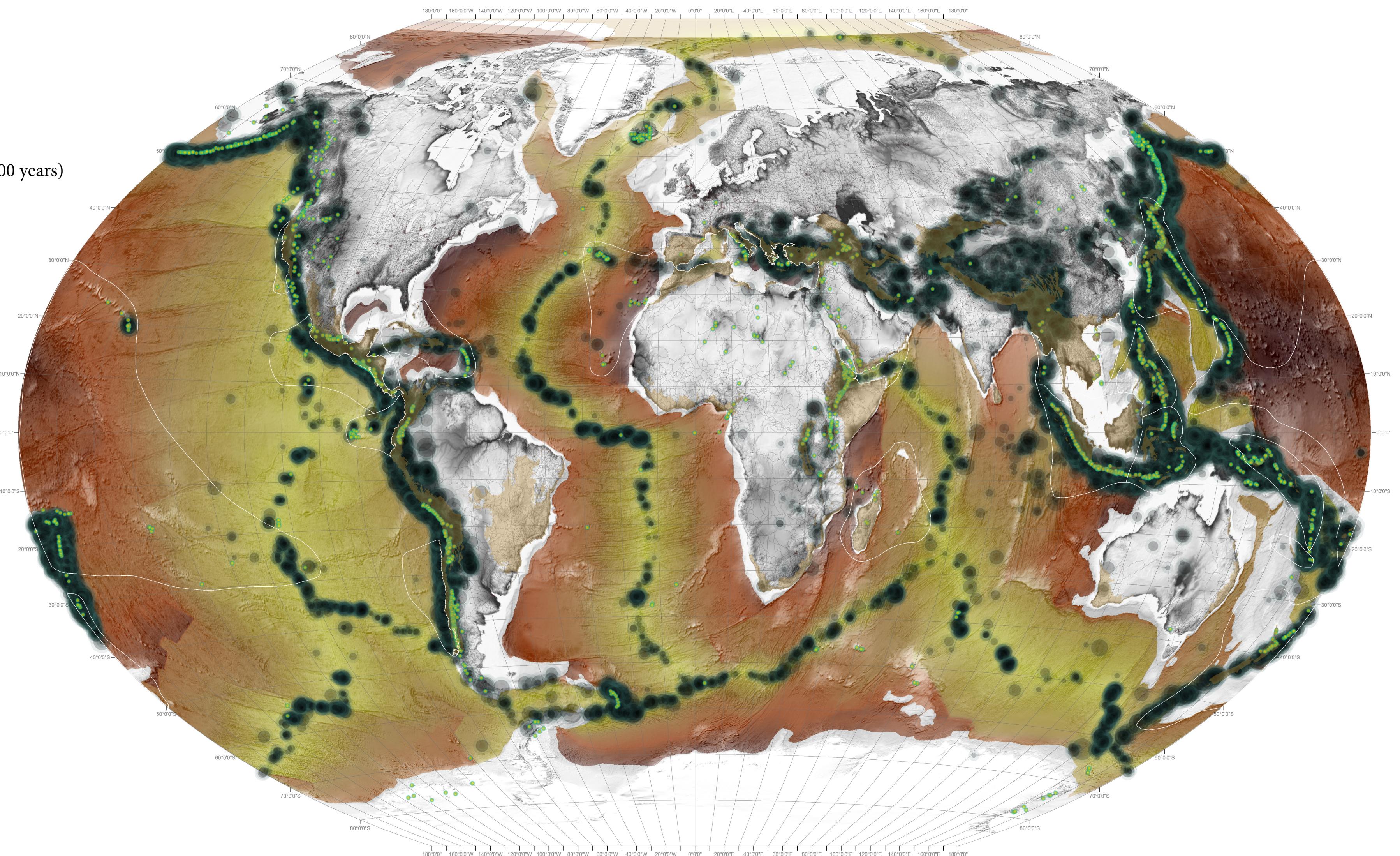
Volcanoes<sup>2</sup>

1,540 from the Holocene Period (past 10,000 years)

Age of the Ocean's Lithosphere<sup>3</sup>

0 >>>> 280 million years

Hotspots<sup>4</sup>



1. ISC-GEM, 2015

2. Venzke, E., 2013

3. Muller, R. D., et al., 2008

4. Conservation International, 2011