

Climate Monitoring

Δ Biotic Communities

Δ Water Resources



**GROUNDWORK**  
Hudson Valley



International Research Institute  
for Climate and Society  
EARTH INSTITUTE | COLUMBIA UNIVERSITY



Sarah Lawrence College  
Center for the Urban River at Beczak

Climate Monitoring

Real Time Climate Tracking

Polar ice

Sea level rise

Climate vs. Weather

Global temperature and greenhouse gas concentration

Climate Change & Extreme Weather Events

## Climate Monitoring

### Real Time Climate Tracking

Why [Climate] Data Matters  
(International Research Institute)  
<https://www.youtube.com/watch?v=-G8jy5ldiTU>

NOAA Global Climate Dashboard  
Embed Just Dashboard? <https://www.climate.gov/maps-data#global-climate-dashboard>

### Ice Core Video

<https://www.youtube.com/watch?v=oHzADI-XID8>

## Climate Monitoring

### Polar ice

#### Images of Change NASA glacier melt

[http://climate.nasa.gov/climate\\_resources/4](http://climate.nasa.gov/climate_resources/4)

OR <https://climate.nasa.gov/images-of-change?id=376#376-muir-glacier-melt-alaska>

#### Antarctic & Greenland Land Ice

**Images or embed:** <https://climate.nasa.gov/vital-signs/land-ice/>

#### National Snow & Ice Data Center

#### Charctic Interactive Sea Ice Graph

<http://nsidc.org/arcticseaicenews/charctic-interactive-sea-ice-graph>

## Climate Monitoring

### Sea level rise

If Antarctica Melted: Antarctic Ice Sheet Interactive  
**embed:** [https://ny.pbslearningmedia.org/asset/ess05\\_int\\_icemelt/](https://ny.pbslearningmedia.org/asset/ess05_int_icemelt/)

NOAA Interactive Map  
**embed?** <https://coast.noaa.gov/slr/>

Yonkers & Hudson Valley Coastline  
**embed?** <http://scenichudson.org/slr/mapper>

# Climate Monitoring

## Climate vs. Weather

### What is Climate? (PBS Learning Media Video)

DL: <https://ny.pbslearningmedia.org/resource/3059b771-8019-4836-8850-897e7cba25d5/3059b771-8019-4836-8850-897e7cba25d5/#.WL4E8m8rKCg>

### Weather vs. Climate (NOAA site video)

**embed:** `<iframe width="620" height="349" src="https://www.youtube.com/embed/e0vj-0imOLw" frameborder="0" allowfullscreen></iframe>`

# Climate Monitoring

## Global temperature and greenhouse gas concentration

### The Greenhouse Effect

DL: <http://nca2014.globalchange.gov/report/appendices/climate-science-supplement#graphic-38756>

### Global Temperature Interactive Map (1884-2016)

**Downloadable** <https://svs.gsfc.nasa.gov/4030>

### CO<sub>2</sub> and Temperature Correlation (Past 800,000 years)

DL: <https://www.epa.gov/sites/production/files/2016-07/co2temp800kyrs-large.jpg>

### Modern Era CO<sub>2</sub> and Temperature (1850-2015)

DL: <https://www.ncdc.noaa.gov/monitoring-references/faq/images/global-temp-and-co2-1880-2009.gif>

### NASA Video: Comparing Natural & Human Factors

**Downloadable:** [https://climate.nasa.gov/climate\\_resources/144](https://climate.nasa.gov/climate_resources/144)

## Climate Monitoring

### Climate Change & Extreme Weather Events

#### Extreme Heat Waves (NOAA Articles)

<https://www.climate.gov/tags/heat-wave>

#### NOAA Drought Monitor USA (+PBS Video Inc Rain)

<https://www.climate.gov/maps-data/data-snapshots/usdroughtmonitor-weekly-ndmc-2013-04-02>

#### Billion Dollar Weather Events

**images from:** <https://www.climate.gov/news-features/featured-images/billion-dollar-weather-disasters-1980>

#### Heavy Precipitation Events (+PBS Video Inc Rain)

OR: <http://nca2014.globalchange.gov/report/our-changing-climate/heavy-downpours-increasing#graphic-16692>



## Δ Biotic Communities

Climate Change and Agriculture

Climate Change and Forest Cover

Climate Change and Species Ranges

Climate Change and Disease/Pest Species

Δ Biotic Communities

Climate Change and Agriculture

USDA Plant Hardiness Zone Map (Past & Present)  
<https://www.arboday.org/media/images/changes15.png>

Projected Crop Yields 2050 (World Resource Institute)  
[http://www.wri.org/sites/default/files/uploads/  
climate\\_and\\_crop\\_yields\\_2.jpg](http://www.wri.org/sites/default/files/uploads/climate_and_crop_yields_2.jpg)

Resilience for Farmers (IRI Video)  
[https://youtu.be/4ieM\\_zKB6U4](https://youtu.be/4ieM_zKB6U4)

## Δ Biotic Communities

### Climate Change and Forest Cover

#### Increase in Wildfires

**Wildfire bar graph at** <http://nca2014.globalchange.gov/report/appendices/climate-science-supplement#narrative-page-38689>

#### Global Deforestation (2 images)

<https://pbs.twimg.com/media/CNa83pbUEAIM8sA.png>  
<https://www.cgdev.org/sites/default/files/WFWN/avoiding-deforestation-better.jpg>

#### Forests: The Lungs of the Earth (Carbon Sequestration)

[https://svs.gsfc.nasa.gov/vis/a000000/a003900/a003947/airsc02\\_land\\_connectionV07\\_07.m4v](https://svs.gsfc.nasa.gov/vis/a000000/a003900/a003947/airsc02_land_connectionV07_07.m4v)  
**OR:** <http://nca2014.globalchange.gov/highlights/report-findings/ecosystems-and-biodiversity#graphic-21081>

#### Projected Shifts in Forest Types (USGCRP 2009)

<https://www.epa.gov/sites/production/files/2016-06/shiftinforesstypes-large.jpg>

## Δ Biotic Communities

### Climate Change and Species Ranges

#### Species Range Change Interactive

**Embed?** <http://nca2014.globalchange.gov/highlights/report-findings/ecosystems-and-biodiversity#graphic-31940>

#### Bees are Feeling the STING of Climate Change (NASA)

**Downloadable at:**

<https://svs.gsfc.nasa.gov/cgi-bin/details.cgi?aid=10481>

## Δ Biotic Communities

### Climate Change and Disease/Pest Species

#### Climate Change & Human Health (CDC image)

[https://www.cdc.gov/climateandhealth/images/climate\\_change\\_health\\_impacts600w.jpg](https://www.cdc.gov/climateandhealth/images/climate_change_health_impacts600w.jpg)

#### Rise in Vector Species

<http://nca2014.globalchange.gov/highlights/report-findings/human-health#graphic-21020>

#### Forest Pest Video (Source AP)

**Get Embed Code from:** <http://www.pressherald.com/2016/12/07/spread-by-trade-and-climate-bugs-butcher-americas-forests/video/>

### Invasive Species

## Δ Water Resources

Deluge or Drought  
Text box description only

### Freshwater Availability & Consumption

<http://nca2014.globalchange.gov/highlights/report-findings/water-supply#graphic-21051>

**OR:** <http://nca2014.globalchange.gov/highlights/report-findings/water-supply#graphic-21051>

### Water Contamination

<http://nca2014.globalchange.gov/highlights/report-findings/human-health#narrative-page-21015>

### Water and Energy

<https://i0.wp.com/kleef.asia/wp-content/uploads/2014/07/Water-used-by-power-plants.jpg>