

Sucho a záplavy - náznaky počínajícího globálního klimatického rozvratu

Jan Hollan

CzechGlobe –
Centrum výzkumu globální změny
AV ČR, v.v.i.

Různá sousloví

- globální oteplení (... korektní, říká: trend)
- změna klimatu (... to nikoho nepoplaší)
- klimatická změna (... mění se i jiné věci)

- **globální klimatický rozvrat** (... výstižné)
- klimatická krize (... dtto)
- **dramatická klimatická změna** (... jemnější)

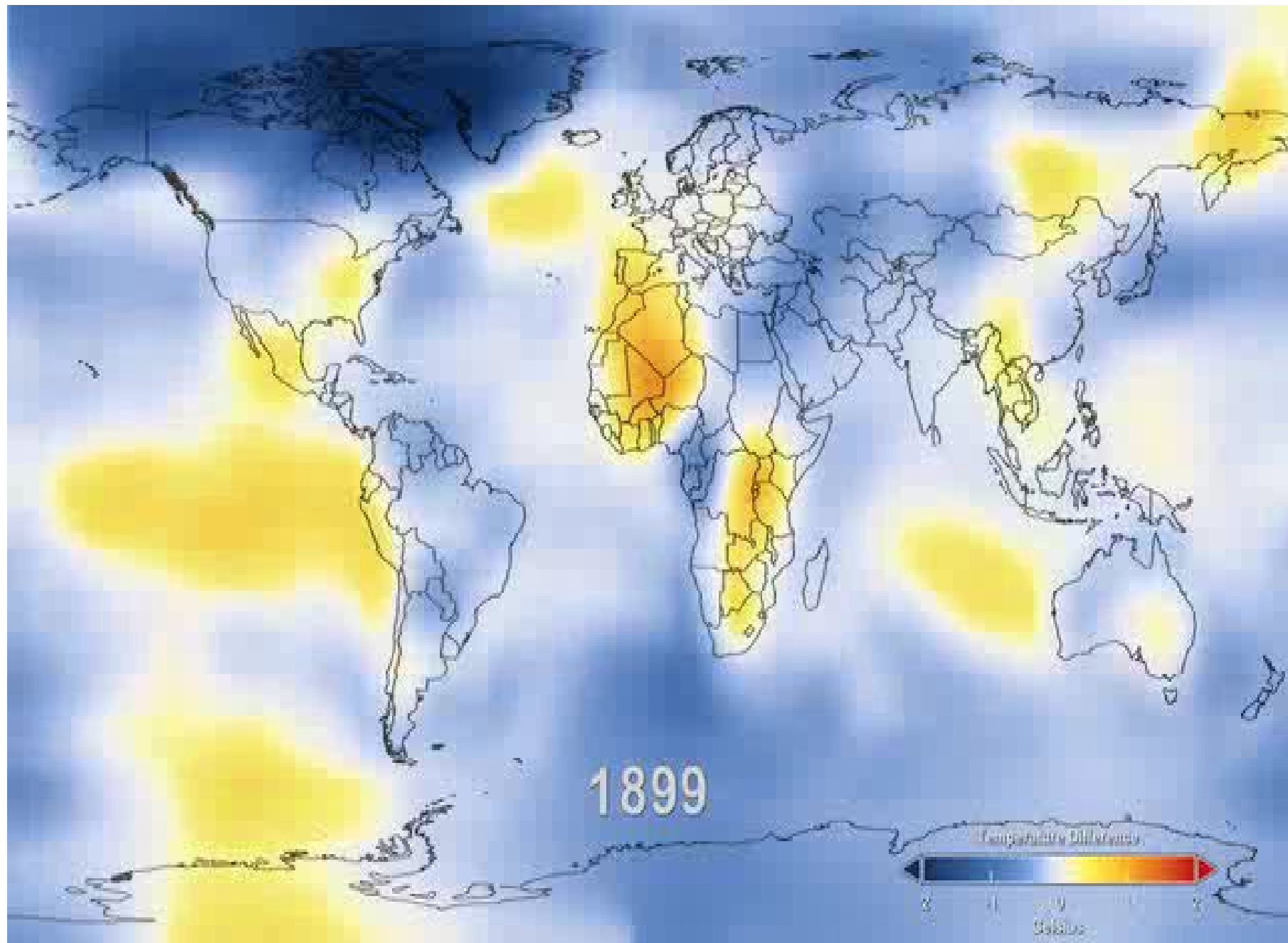
Stabilizovat „na úrovni, která zamezí nebezpečnému lidskému zásahu do klimatického systému“

**United Nations
Framework Convention on Climate Change
(1992)**

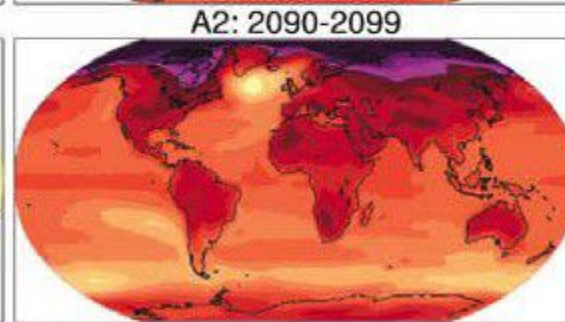
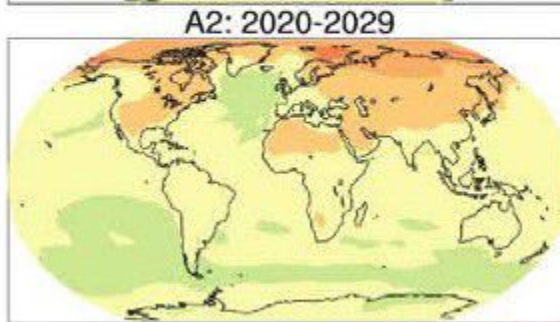
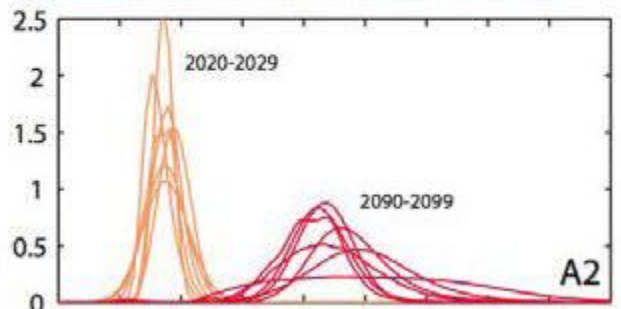
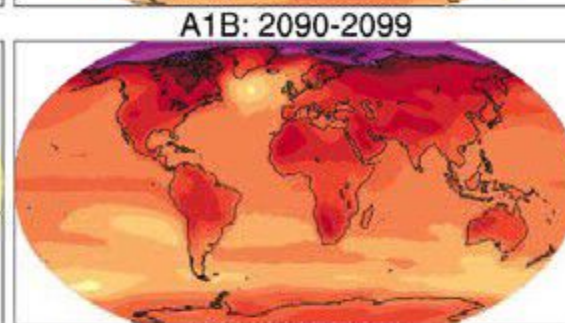
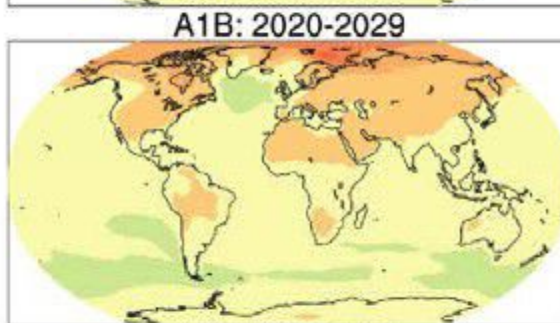
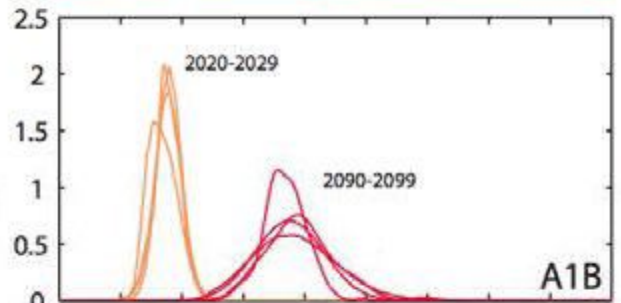
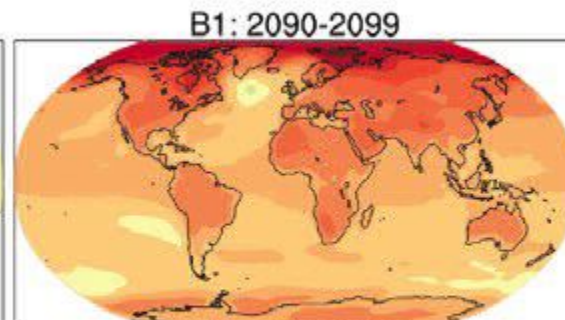
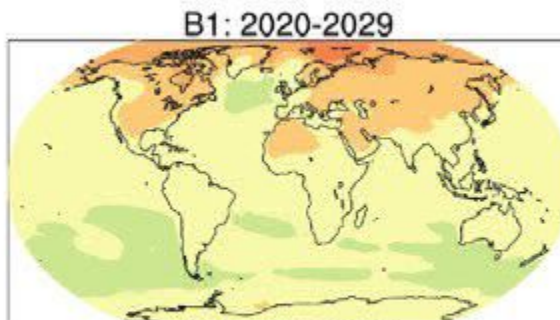
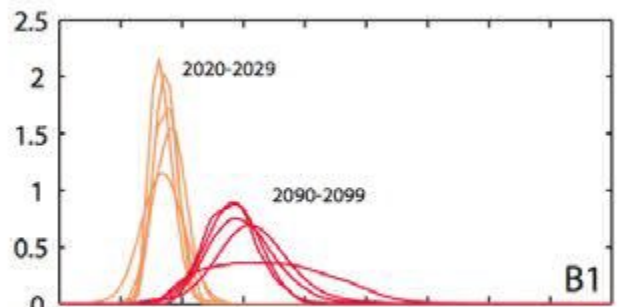
Aim:

to stabilize greenhouse gas concentrations...

“...at a level that would prevent dangerous anthropogenic interference with the climate system.”



AOGCM projekce povrchové teplot

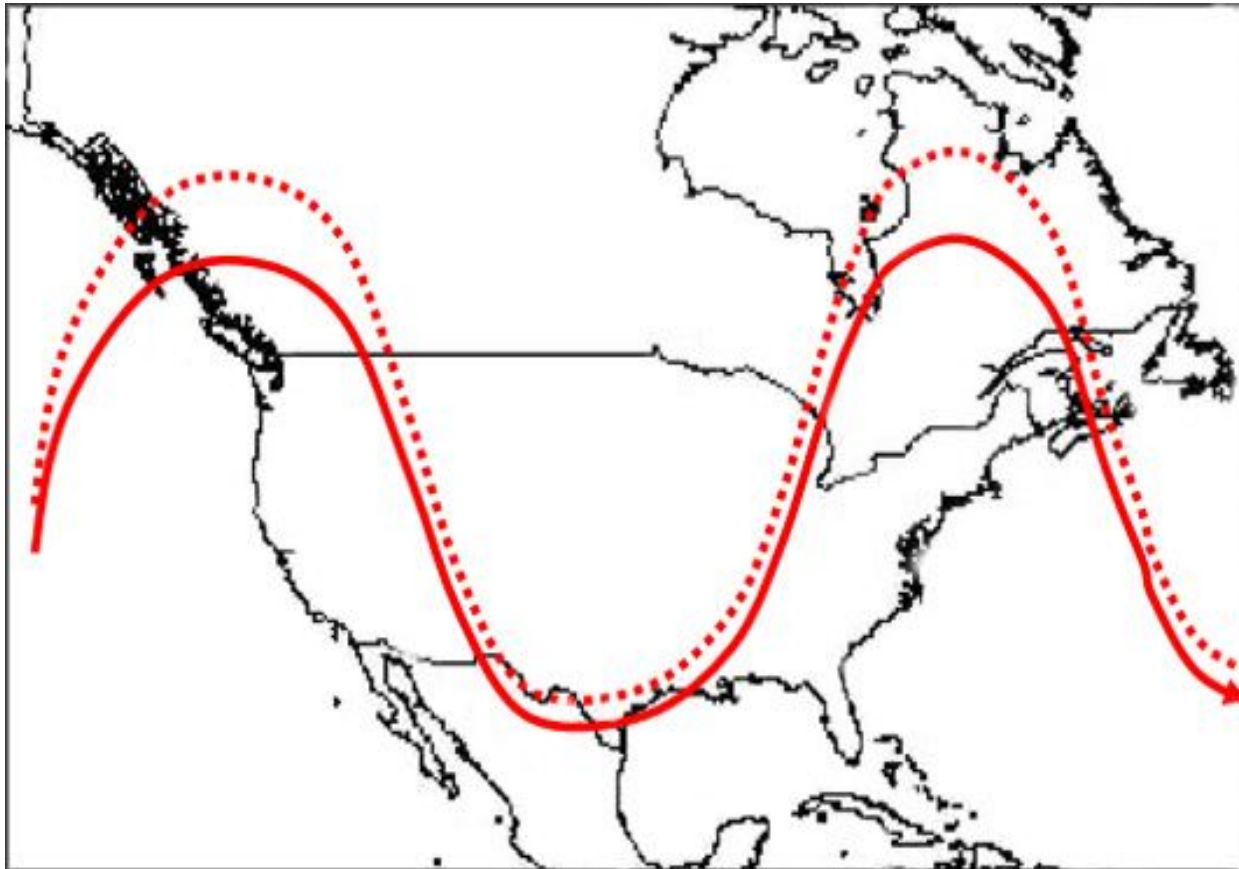


Globální průměrná změna povrchové teploty (°C)



Teplejší Arktida vede k pomalejšímu **jet streamu**, s většími vlnami a pomalejším posunem (**Jennifer Francis, 2012**)

Francis, J. A. and S. J. Vavrus (2012), Evidence linking Arctic amplification to extreme weather in mid-latitudes, *Geophys. Res. Lett.*, 39, L06801, doi:10.1029/2012GL051000.



povodně



Teplejší atmosféra pojme více
vlhkosti
(~7%/°C)

➤ Větší srážky v přívalech !

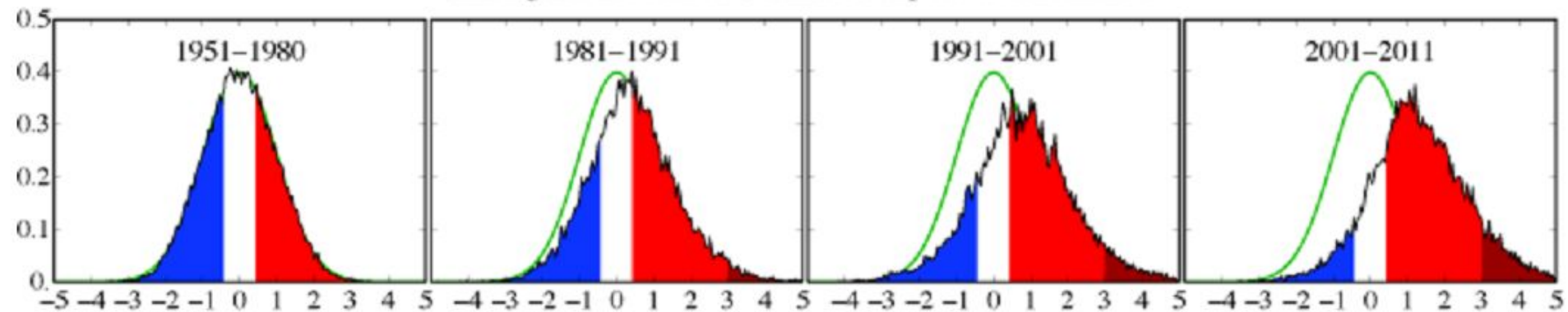
➤ více povodní ?

➤ více such ?



Problémem jsou >3 -sigma
extrémy, dnes už i 4 sigma

Shifting Distribution of Summer Temperature Anomalies

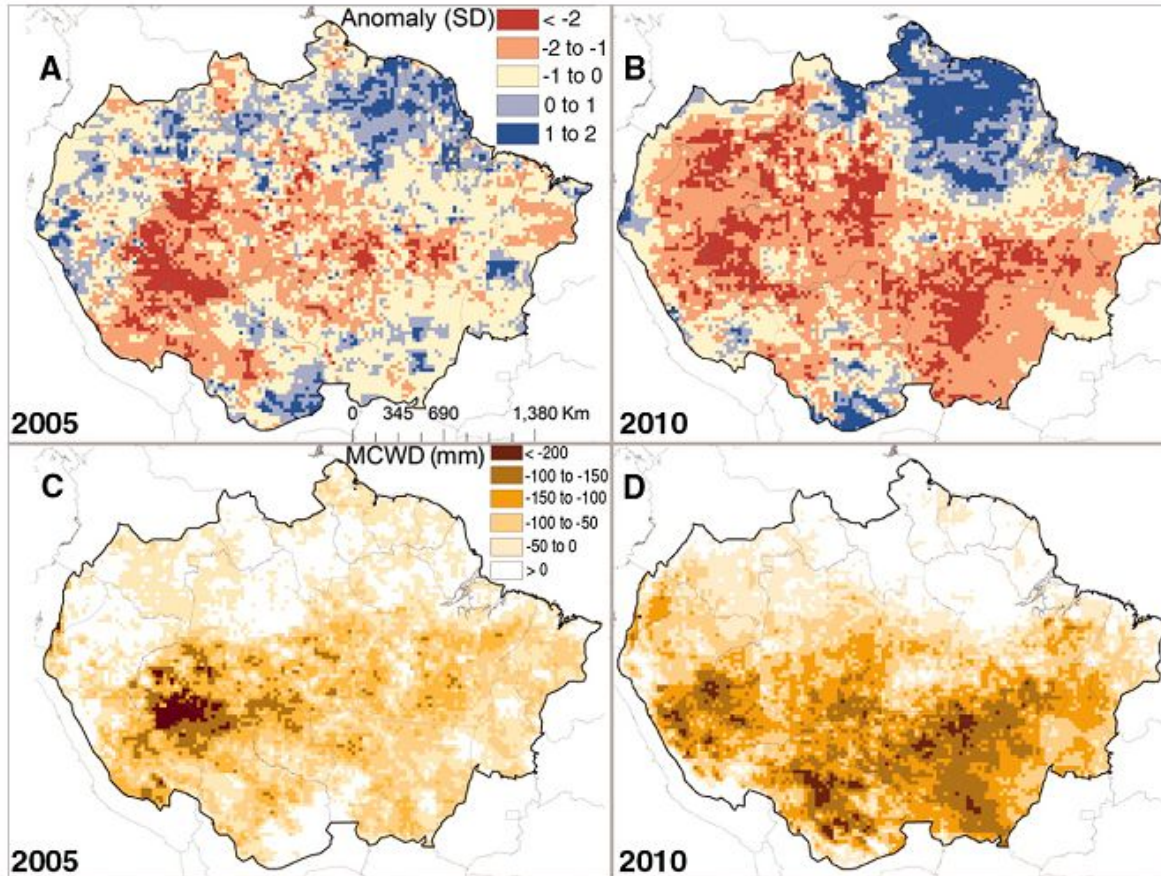




Wild fires in Greece, August 2007

Source: spiegel.de

Amazon – from carbon sink to carbon source? - the 2005 & 2010 droughts



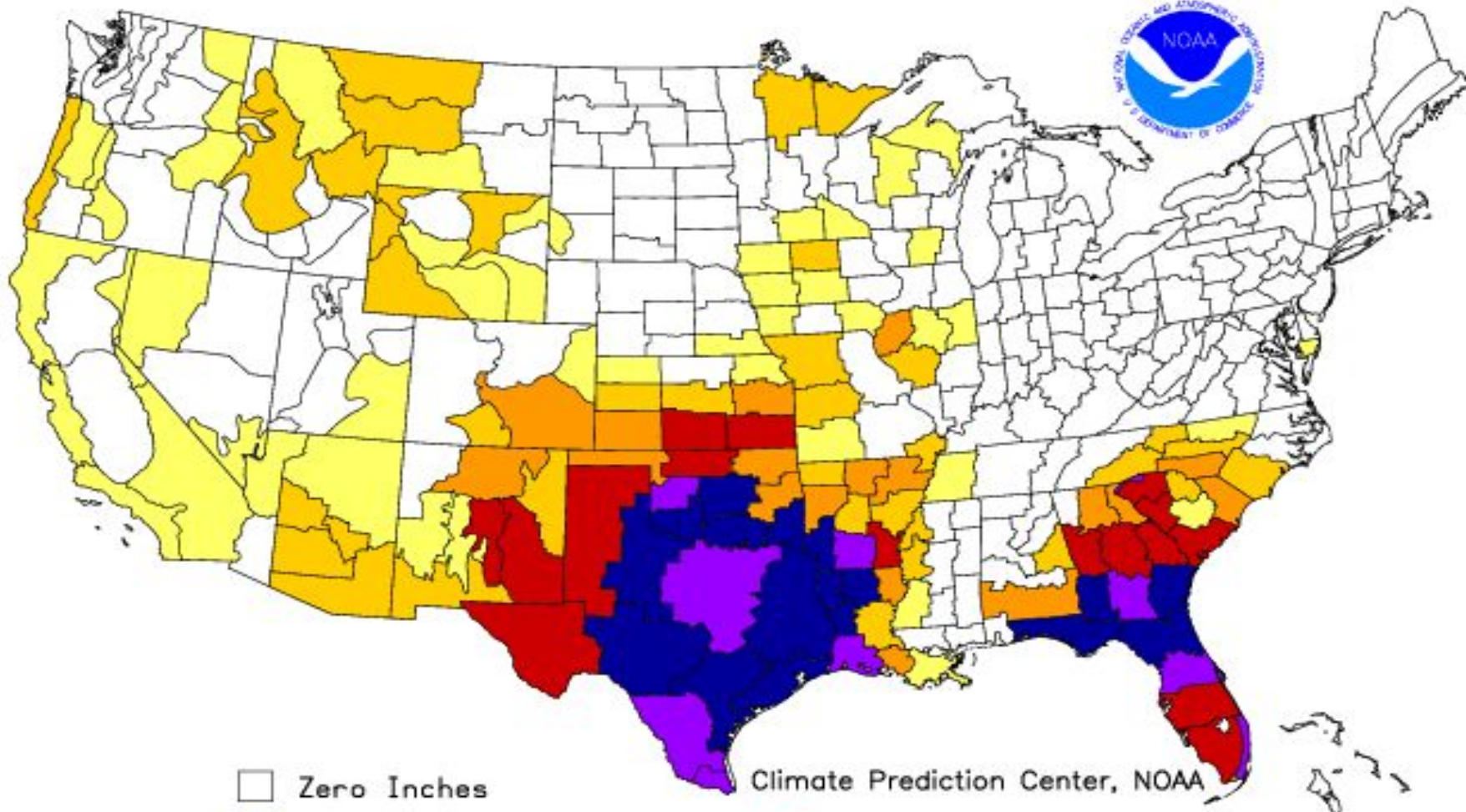
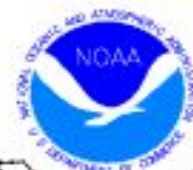
A & B = anomaly of
dry season rainfall
from decadal mean

C & D = maximum
climatological water
deficit from decadal mean

2010 emissions release
due to drought
may have been in
excess of 5 billion
tonnes CO₂

= US total annual fossil-
fuel emissions

Additional Precip. Needed (In.) to Bring PDI to -0.5
Weekly Value for Period Ending OCT 1, 2011
Long Term Palmer Drought Severity Index (PDI)

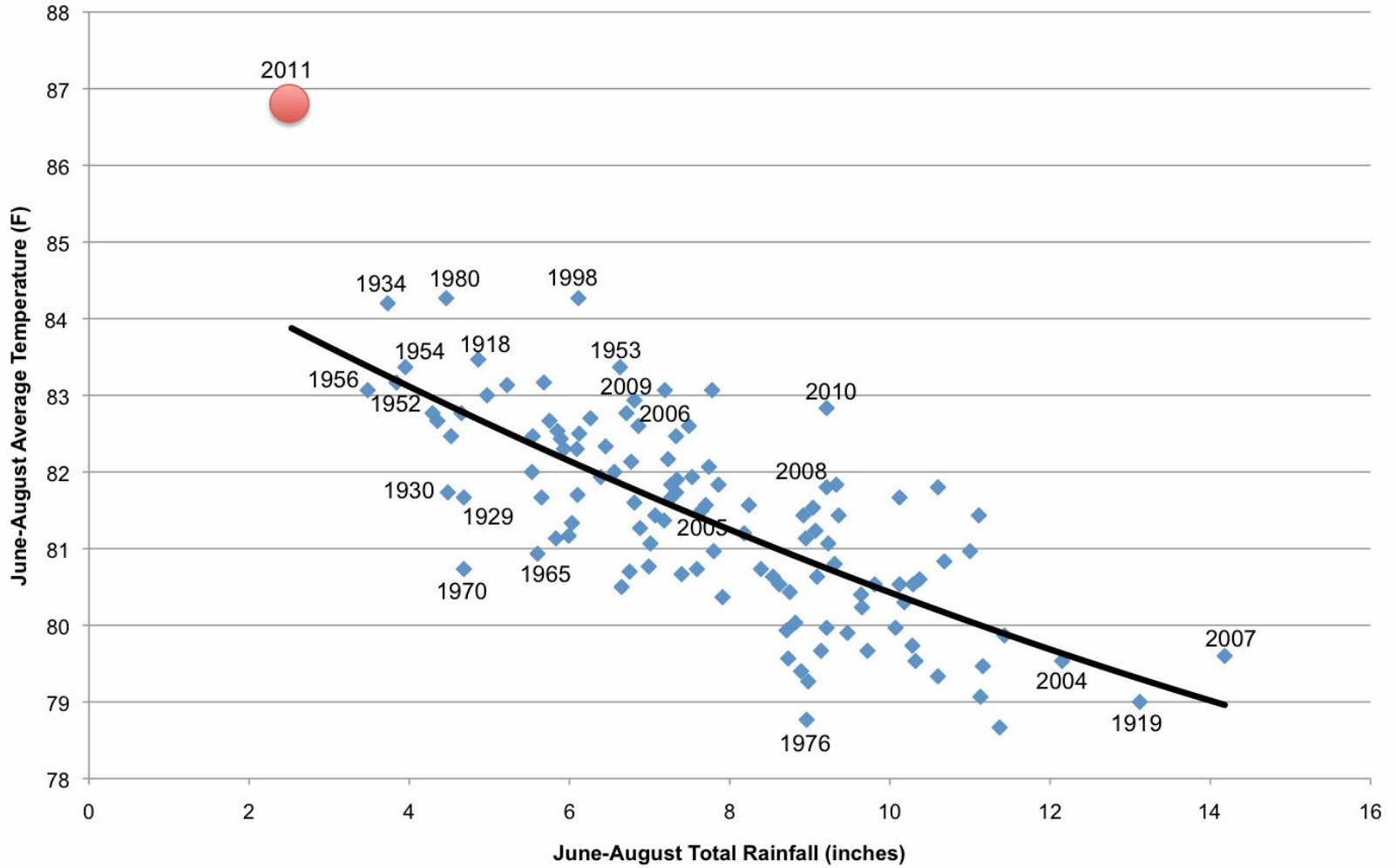


- Zero Inches
- Trace to 3 Inches
- 3 to 6 Inches
- 6 to 9 Inches

Climate Prediction Center, NOAA

- 9 to 12 Inches
- 12 to 15 Inches
- Over 15 Inches

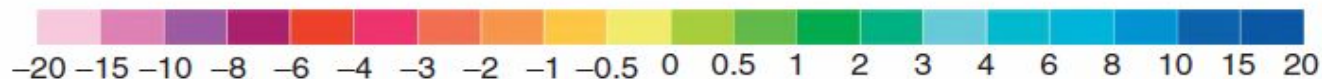
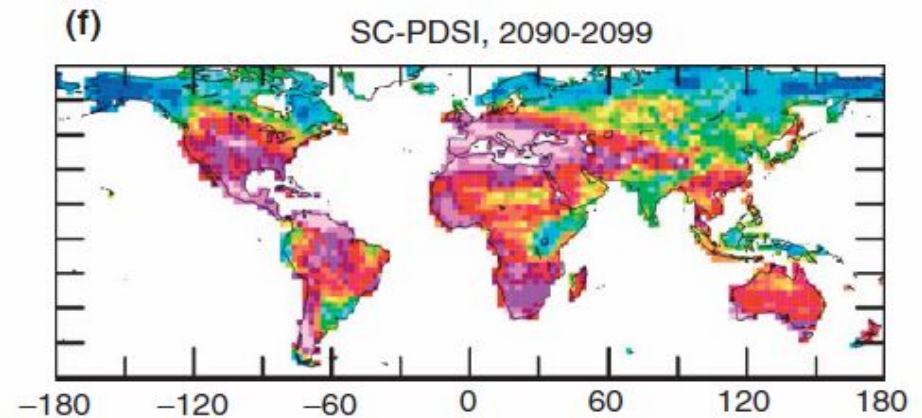
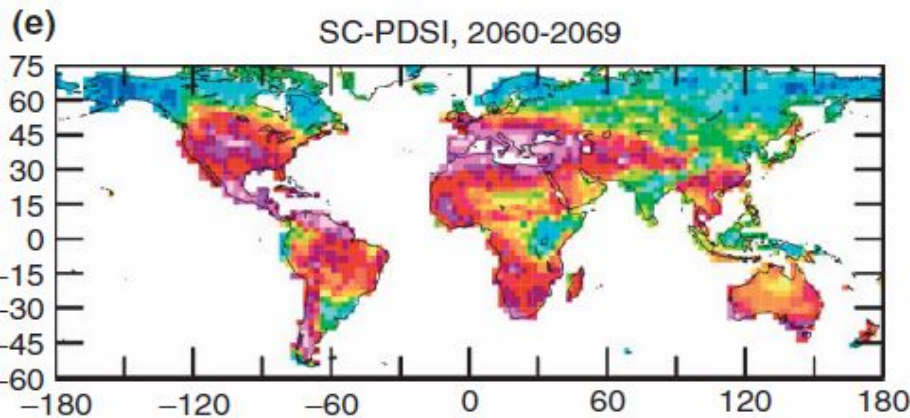
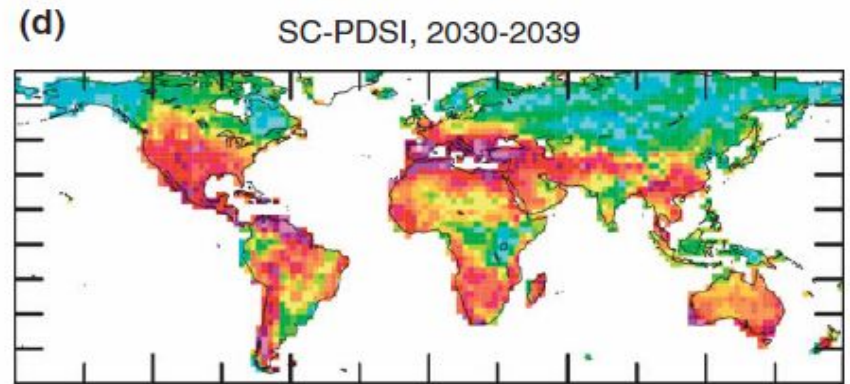
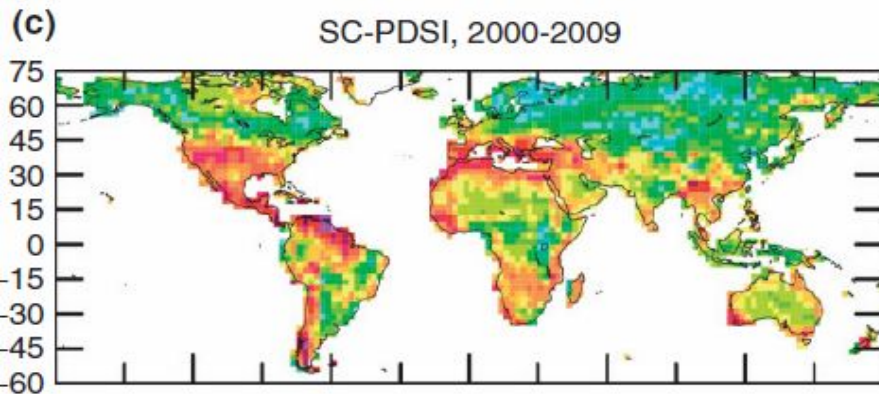
Texas Summers



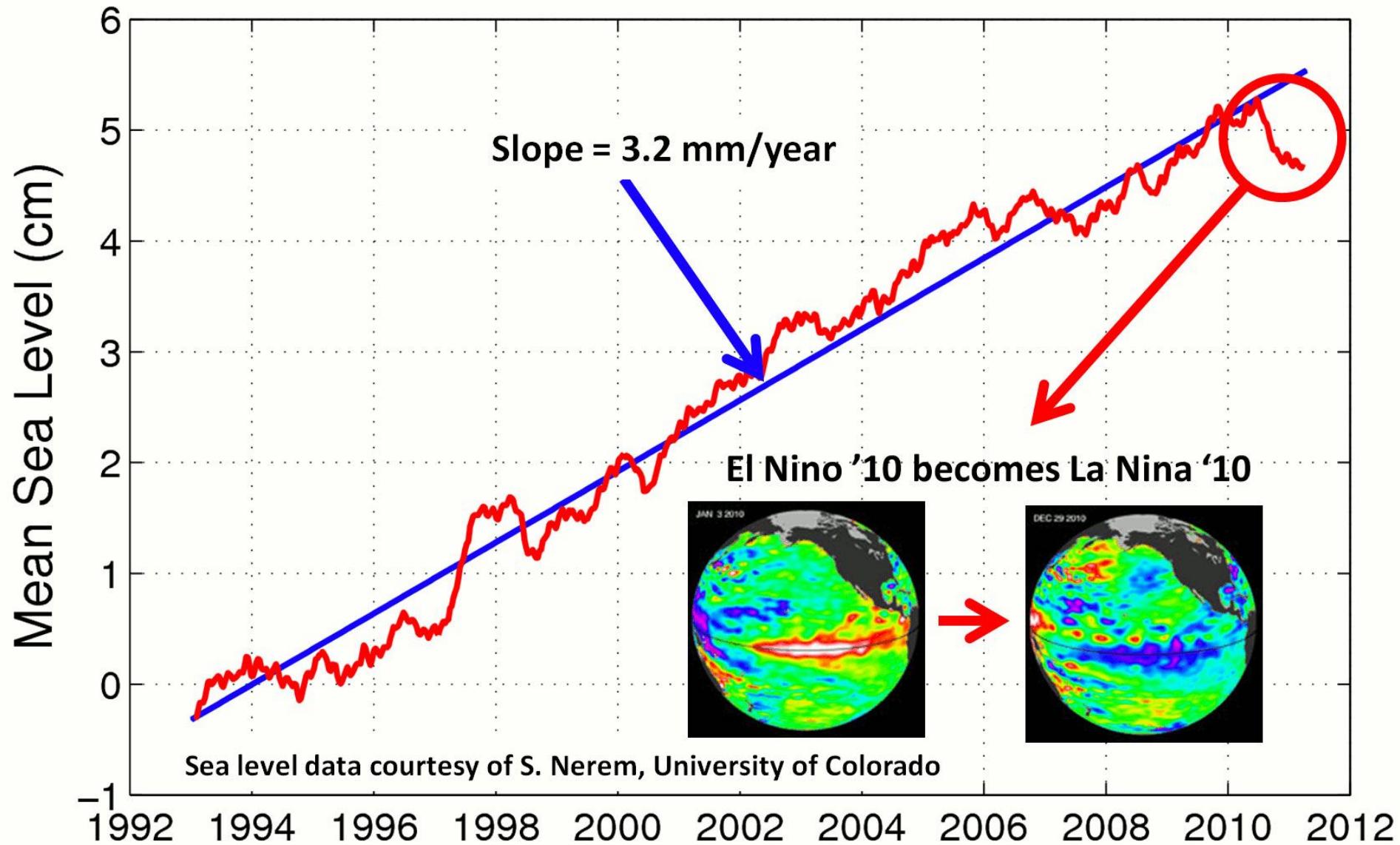
Index vážnosti sucha (již červená znamená extrémní sucho)

(22 modelů při vývoji dle SRES A1B)

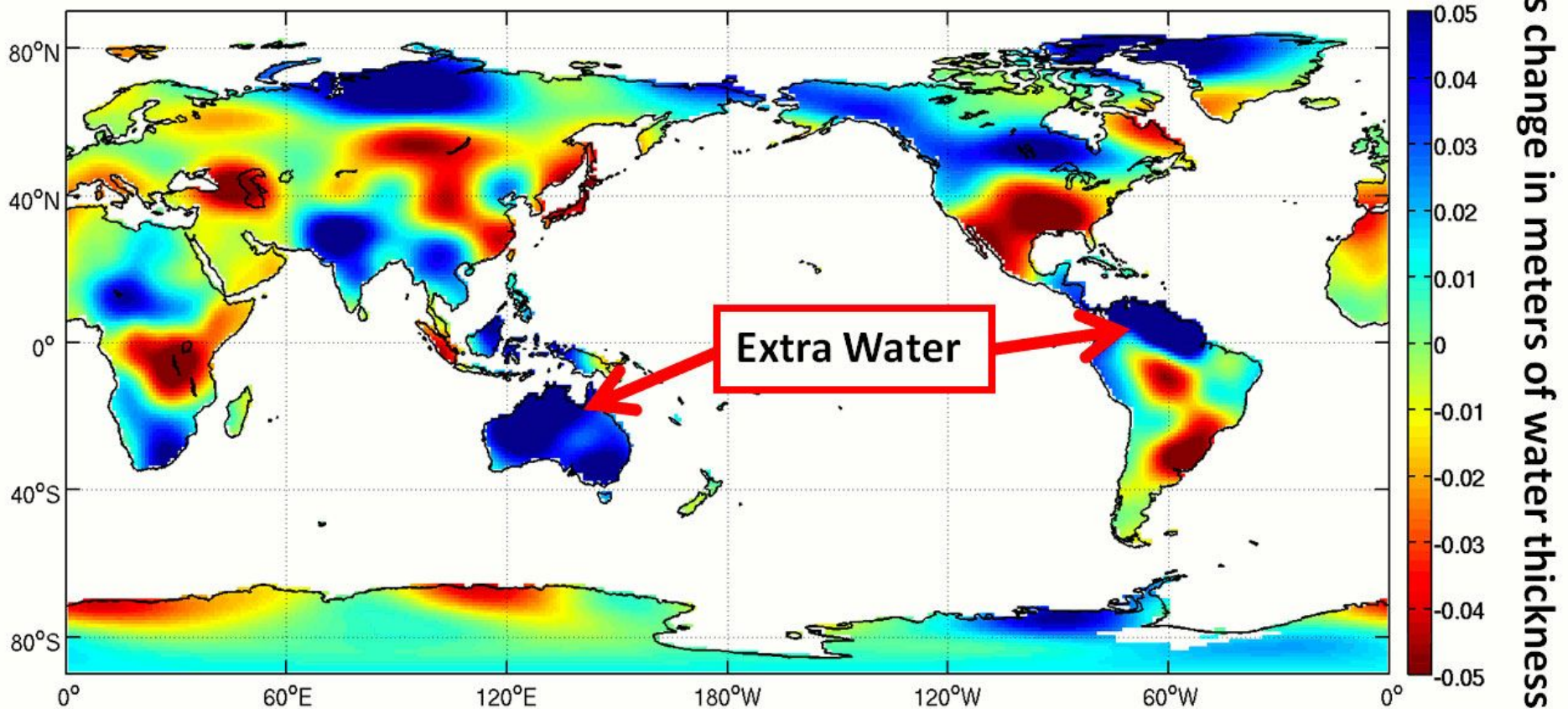
(Dai, 2010: Drought under global warming: a review)



Global Sea Level Drops 6 mm in 2010



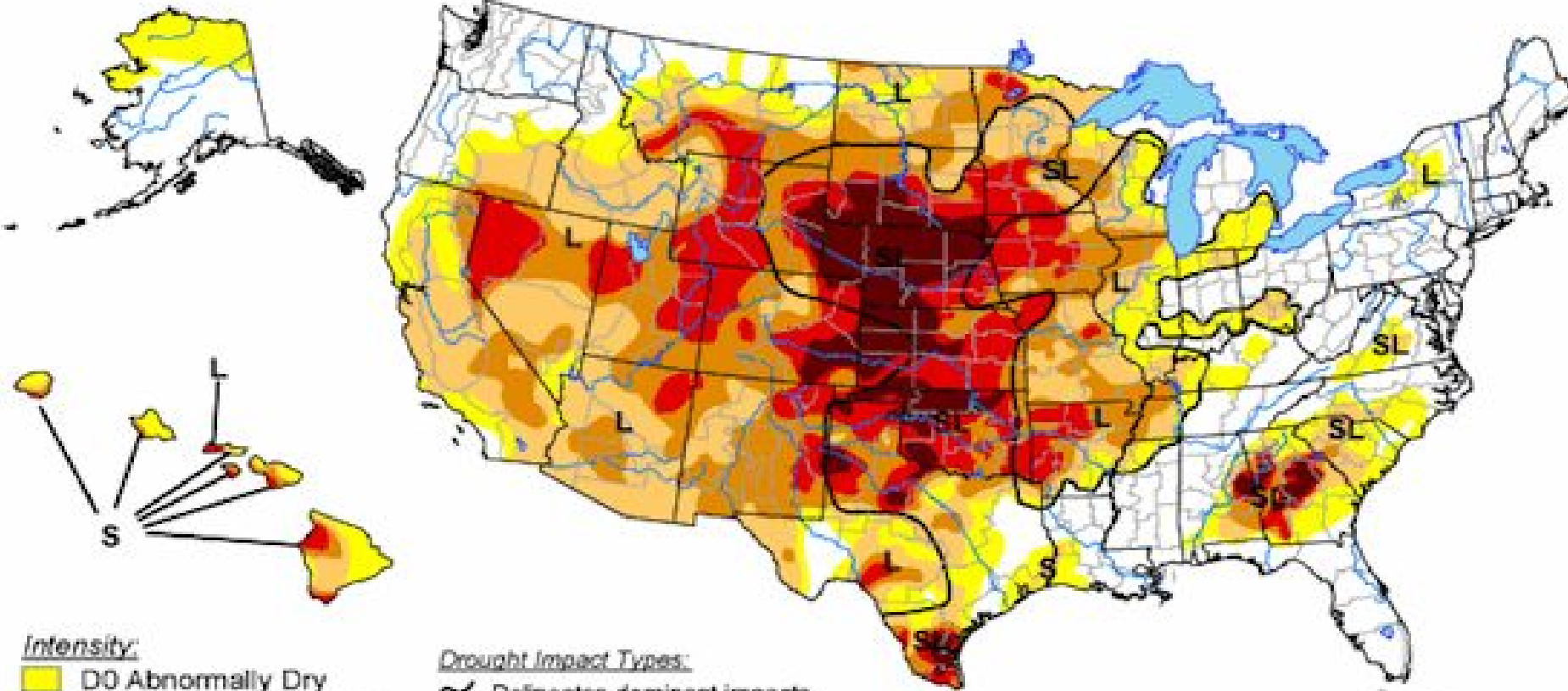
GRACE Shows Change in Water from March 2010 to March 2011








U.S. Drought Monitor

November 6, 2012


Valid 7 a.m. EST



Intensity:

-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional

Drought Impact Types:

-  Delineates dominant impacts
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu/>



Released Thursday, November 8, 2012

Author: David Miskus, NOAA/NWS/NCEP/CPC

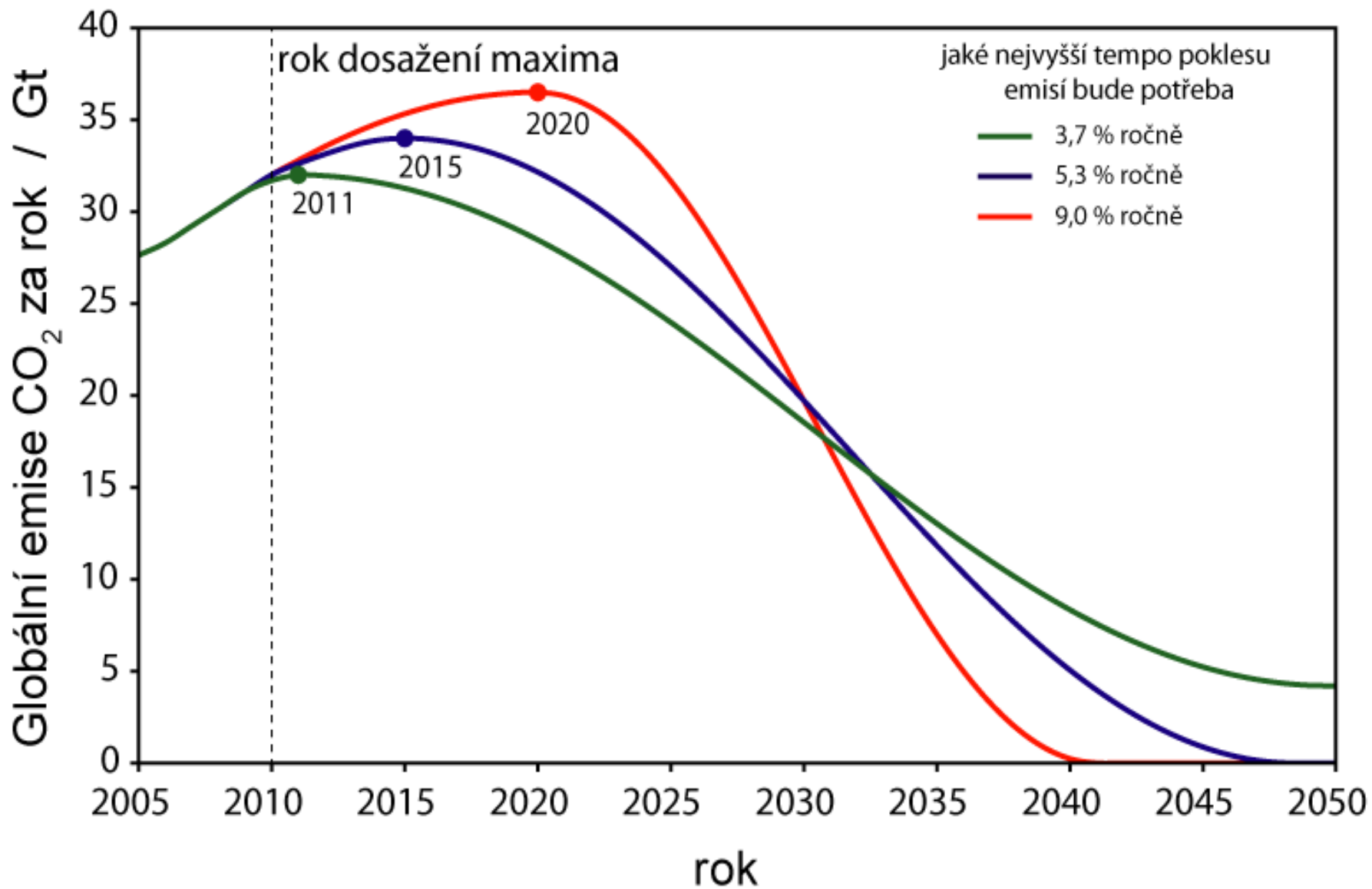


Figure 22: Vývoj emisí, který by dával naději 67 %, že globální oteplení nepřesáhne 2 °C

Cíl pro CO₂:

< 350 ppm

**Pro záchranu planety v podobě,
ve které se vyvinula civilizace**

Odkazy

- www.veronica.cz/klima
- www.zmenaklimatu.cz
- <http://amper.ped.muni.cz/gw>
 - www.ipcc.ch

