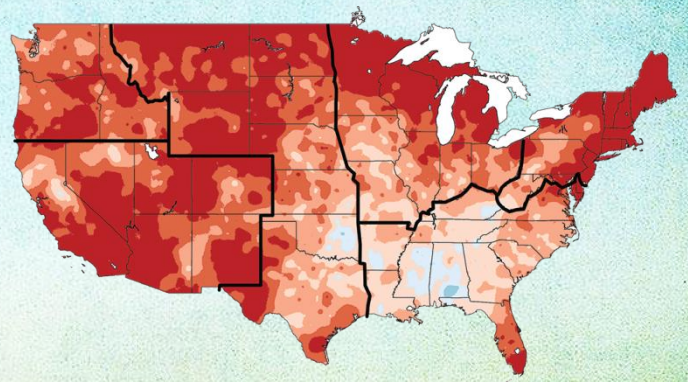
Coordinating national/subnational scale scenarios in the U.S.



Dr. Fred Lipschultz
U.S. Global Change Research Program
July 31, 2014

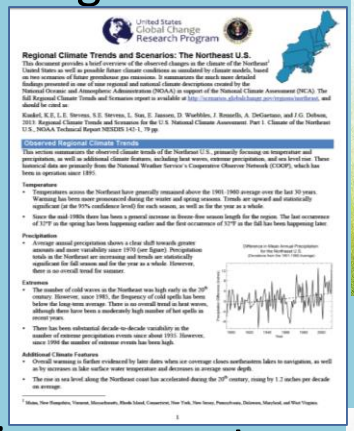
Motivations

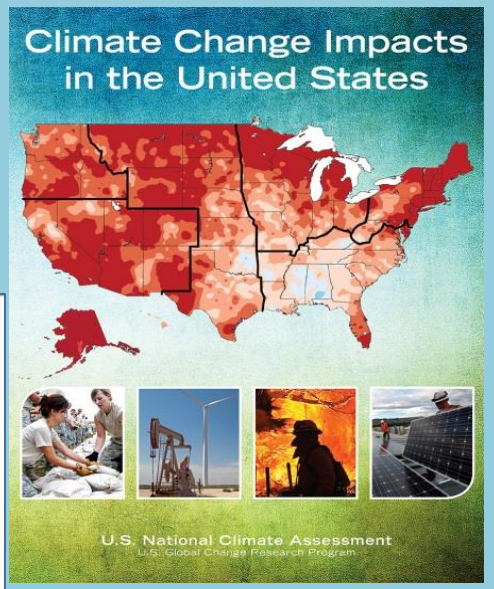
- Facilitates Assessments & Planning:
  - Agencies want consistency and high-level clearance
  - NCA4
- Federal Adaptation plans for Executive Order 13653: Preparing the U.S. for the Impacts of Climate Change
- States & other governmental bodies
- Consistent outlooks across scales
  - With international (RCP, SSP)
  - U.S. Regions
  - States on down to local
  - Temporal

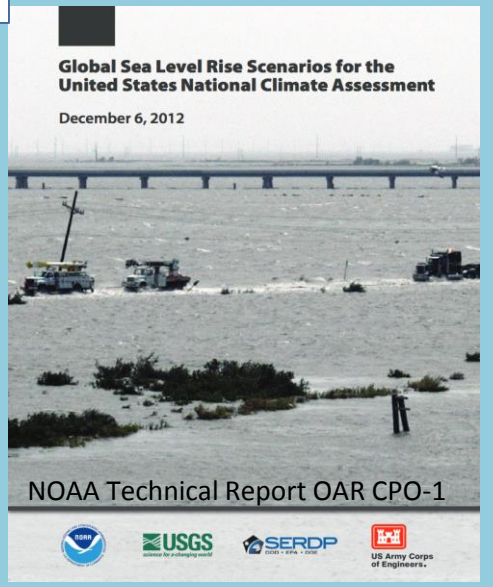
13 Federal Departments & Agencies +
Executive Office of the President

3rd NCA

- Based on SRES A2 & B1
  - 8 regional reports for observational climatologies & model projections to 2100
  - Consistent methodology
  - Basis of numerous maps
- Datasets available
  - Metadata, methods, underlying datasets
  - Improved availability soon for IAV & decision-support.
  - Scope?
- Sea Level Rise
- Integrated Climate & Land Use Scenarios (ICLUS)
- http://scenarios.globalchange.gov







GlobalChange.gov
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U.S. Global Change Research Program
National Climate Assessment

Global Change Information System (GCIS)

Search
GCID lookup
Advanced search
SPARQL query
nca3 report

Global Change Information System

Report : nca3

Climate Change Impacts in the United States: The Third National Climate Assessment

2014 assessment

National Climate Assessment and Development Advisory Committee

Jerry Melillo, Terese (T.C.) Rich

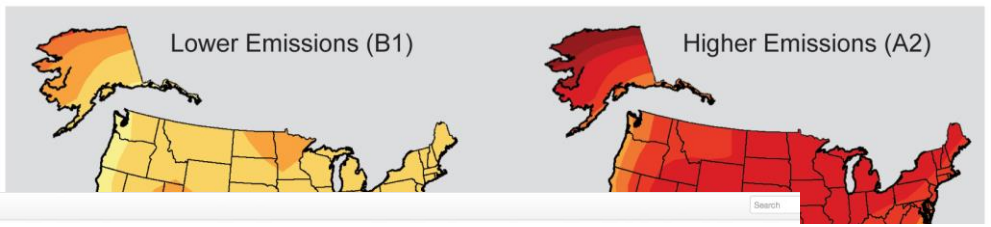
The National Climate Assessm

a 60-member Federal Advisory

the National Academy of Scier

This report has 43 chapters, 2

http://nca2014.globalchange.g



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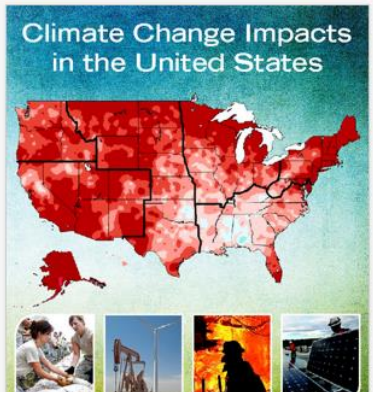


Search
GCID lookup
Advanced search
SPARQL query
nca3 report
report : nca3
chapters
figures
tables
findings
references
publications
report : nca3
reports
figures
images
books
journals
articles
web pages
datasets
contributors
people
organizations

activity : e8d9fc4f-nca3-cmip3-r201205-process

e8d9fc4f-nca3-cmip3-r201205-process

Multi-model mean CMIP3 (higher emissions scenario) temperature projections were plotted for the United States, for 2071-2099 relative to 1970-1999.

1. For each model at each grid point, the mean annual temperature under the higher emissions scenario (A2) was calculated.
2. For each model, these data were re-gridded to a common grid.
3. For each model at each grid point, the mean temperature under the higher emissions scenario (A2) was calculated for two periods: 1970-1999 and 2071-2099.
4. At each grid point, the mean temperature for the two periods was computed by averaging the following models:
CCSM3, CGCM3.1 (T47), CNRM-CM3, CSIRO-Mk3.0, ECHAM5/MPI-OM, ECHO-G, GFDL-CM2.0, GFDL-CM2.1, INM-CM3.0, IPSL-CM4, MIROC3.2 (medres), MRI-CGCM2.3.2, PCM, UKMO-HadCM3, and UKMO-HadGEM1
5. At each grid point, the difference in projected temperature was calculated for 2071-2099 minus 1970-1999.
6. Data were plotted for grid points in the United States.

The duration of this activity was 100 hours.

Output artifacts generated by this activity :

```
tas_sresa2_1970-1999_2071-2099_change.nc
temp_scenarios_annual.eps
temp_scenarios_annual_new_colors_darker.eps
temp_scenarios_annual_new_colors_darker.png
temp_scenarios_HI_annual.eps
temp_scenarios_HI_annual_new_colors_darker.eps
temp_scenarios_HI_annual_new_colors_darker.png
config.py
plot_annual_temp_maps.py
2-8_8.png
CS_projected temperature change_sres_V7.png
```

This activity resulted in the following :

image e8d9fc4f-421b-48c1-a355-e493d8e8f83 was derived from dataset nca3-cmip3-r201205

Computing environment : Linux (Red Hat Enterprise Linux Server release 6.4)

Software used : Python (v2.7.6)

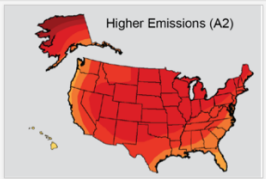
Visualization software used : Python (v2.7.6), Matplotlib (v1.3.1), Basemap (v1.0.7)

Notes : Python

You are viewing /activity/e8d9fc4f-nca3-cmip3-r201205-process in HTML
Alternatives : JSON YAML text Turtle N-Triples JSON Triples RDF+XML RDF+JSON Graphviz SVG

f-421b-48c1-a355-e493d8e8f83

issions (A2)



205-process.

age/e8d9fc4f-421b-48c1-a355-e493d8e8f83 in HTML
Turtle N-Triples JSON Triples RDF+XML RDF+JSON Graphviz SVG

Assessment

U.S. Scenario Planning

USGCRP Scenarios and Interpretive Science Working Group

Building foundations for a coordinated U.S. scenario science enterprise responding to shared agency information needs for quantitative and qualitative scenario–related products aligned around regions, sectors, systems, and topics over spatial and temporal scales of interest

- Advancing collaborative science on critical gaps
- Enhancing methodologies for use-inspired scenario development, risk framing, and contextual interpretation
- Developing the next generation scenario work products for model inter-comparisons, assessments, and analyses
- Improving interagency communications, coordination, and accessibility to knowledge, work products, and technical resources

Near-Term Focus Areas

1) Human Dimensions (strong push)
   LULCC & Population/migration (June workshops) & later - Regional economics

2) Climate/environmental systems (coordination)
   Regional climate outlooks (NOAA/NCDC) & Regional sea level rise scenarios (DOD)

3) Scenarios for CMIP 6 and nesting/boundary issues for U.S. scenarios activities
   RCPs and Shared Socioeconomic Pathways

4) Fundamental methodologies, interpretation, risk-based framing and contextual basis

Workshops - July 2014

- Towards Scenarios of U.S. Demographic Change
  Goal: Assess key factors involved in the production of long - term scenarios of U.S. demographic change for use in interdisciplinary analysis of social and environmental issues.

- U.S. Land Use/Land Cover Change Scenarios and Projections

  Goal: Catalyze and launch an interagency process to identify critical uncertainties in projecting long-term (i.e., out to 2100) changes in U.S. land use and land cover change (LULC); observational, data, and modeling capabilities to produce such long-term projections; and appropriate interpretive methods for the development of descriptive quantitative and qualitative scenarios of LULC change that are, to the degree practical/possible, consistent with global-scale scenarios.

Key Points

- Ongoing & fostered activities 'harvested' every 4 yrs rather than culminating in a report
- Embedding in Federal agency activities
- Currently planning for climate projections & scenarios
  - Active consideration of user needs
  - Coordinating efforts of agencies
  - RCP/SSP development for U.S.
  - Downscaling issues (uncertainties, best practices, scale…..)
  - Variables, timing, hosting

Questions

The National Climate Assessment

http://nca2014.globalchange.gov

http://www.globalchange.gov

http://scenarios.globalchange.gov

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