# Why Should Congress Continue to Fund the U.S. Global Change Research Program ("USGCRP") and Federal Agency Climate Science-related Research Producing HISAs *Not* Peer Reviewed in Conformance With U.S. Law (The Information Quality Act)?



June 3, 2014

I. OSTP and the USGCRP:

The U.S. Global Change Research Program ("USGCRP")

> "is a confederation of the research arms of 13 Federal agencies, which carry out research and develop and maintain capabilities that support the Nation's response to global change. USGCRP is steered by the Subcommittee on Global Change Research (SGCR) of the National Science and Technology Council's Committee on Environment, Natural Resources, and Sustainability (CENRS), and overseen by the White House Office of Science and Technology Policy (OSTP)."[1]

Dr. Thomas Armstrong, of OSTP's National Science and Technology Council (NSTC),[2] is the Executive Director of the USGCRP.[3] The OSTP's NSTC, a

> "Cabinet-level Council[,] is *the* principal means within the executive branch to coordinate science and technology policy across the diverse entities that make up the Federal research and development enterprise. *Chaired by the President*, the membership of the NSTC is made up of the Vice President, *the Director of the Office of Science and Technology Policy*, Cabinet Secretaries and Agency Heads with significant science and technology responsibilities, and other White House officials. A primary objective of the NSTC is the establishment of clear national goals for Federal science and technology investments in a broad array of areas spanning virtually all the mission areas of the executive branch. The Council prepares research and development strategies that are coordinated across Federal agencies to form investment packages aimed at accomplishing multiple national goals" (emphasis added).[4]

"In consultation with White House officials and the SGCR, USGCRP's Executive Director ensures that USGCRP meets all mandated requirements",[5] including the undertaking by external stakeholders of "periodic public and peer review of the Program."[6]

Among the primary initiatives pursued by OSTP in the U.S. Government response to evolving claimed anthropogenic climate change is the oversight of the activities of the USGCRP:

> "On June 25, 2013, President Obama laid out a comprehensive plan for steady action to reduce greenhouse gas pollution in America, prepare our country for the impacts of climate change, and lead global efforts to fight it. OSTP is responsible for ensuring that the best science, research, data, tools, and technologies are brought to bear to implement the President's Climate Action Plan, *including by overseeing the activities of the US Global Change Research Program (USGCRP)…*" (emphasis added).[7]

II. OSTP Budgets for USGCRP:

In March 2014, OSTP submitted to Congress a proposed budget for Fiscal Year 2015 ("FY2015") that *inter alia* "invests in research and development (R&D) to…address climate change…"[8] OSTP's budget proposal indicates that approximately $3.5 billion of taxpayer monies should be allocated to improving the government's understanding of and response to global climate change, approximately $2.5 of which would be dedicated to the USGCRP.

> The 2015 Budget proposes approximately *$2.5 billion for the U.S. Global Change Research Program (USGCRP)* to support research to improve our ability to understand, assess, predict, and respond to global climate change (see Table 2). USGCRP investments support the President's Climate Action Plan. *Additional climate investments, including $1 billion* for a new Climate Resilience Fund, are proposed in the Opportunity, Growth, and Security Initiative" (emphasis added).[9]

The proposed $2.5 billion USGCRP budget allocation is further described as follows:

> "U.S. Global Change Research Program: *The 2015 Budget provides approximately $2.5 billion for the U.S. Global Change Research Program (USGCRP)*. USGCRP coordinates and integrates Federal research and applications to assist the Nation and the world in understanding, assessing, predicting, and responding to the human-induced and natural processes of global change and their related impacts and effects. The 2015 Budget supports the goals set forth in USGCRP's 2012-2021 strategic plan, which include: advancing scientific knowledge of the integrated natural and human components of the Earth system; providing the scientific basis to inform and enable timely decisions on adaptation and mitigation; building sustained assessment capacity that improves the United States' ability to document changes on the regional, landscape, and local level in order to understand, anticipate, and respond to global change impacts and vulnerabilities; and advancing communications and education to broaden public understanding of global change. The 2015 Budget also supports an integrated suite of climate change observations; process-based research; and modeling, assessment, and adaptation science activities that serve as a foundation for providing timely and responsive information—including technical reports, impact and vulnerability assessments, and adaptation response strategies to a broad array of stakeholders. *All of these activities are essential elements of the USGCRP 2012-2021*

> *strategic plan and support the President's Climate Action Plan*. (Additional USGCRP highlights can be found in OSTP's USGCRP fact sheet)" (emphasis added).[10]

Budget information relating to USGCRP funding for fiscal years 2011, 2012, 2013 and 2014 reflects that the total U.S. Global Change Research Program Budget for FY2011, FY2012 and FY2013 was approximately $2.49 billion for FY2011, $2.51 billion for FY2012[11] and $2.69 billion for FY2013. These monies had been allocated among eleven federal agencies with NASA receiving approximately 57%, and DOC and NSF each receiving approximately, 13% for FY2011 and FY2012,[12] representing a total of 83% of the total USGCRP budget for each of those fiscal years.

In addition, the President's more granular *Federal Climate Change Expenditures Report to Congress*[13] reveals that total USGCRP funding for each of FY2012 and FY2013 amounted to approximately $2.51 billion and $2.463 billion, respectively, and that the proposed FY2014 USGCRP budget was approximately $2.658 billion.[14] NASA's share of the USGCRP budget for FY2012 and FY2013 was approximately 57% ($1.43 billion) and 58.2% ($1,435 billion). Meanwhile NSF's and DOC-NOAA's share of the USGCRP budgets were 13.27% ($333 million) and 12.5% ($314 million), respectively, for FY2012, and 12.82% ($316 million) and 12.63% ($311 million), respectively for FY2013. NASA's share of USGCRP's proposed budget for FY2014 is 56.4% ($1.5 billion), while NSF's and DOC-NOAA's allocable shares of the proposed FY2014 USGCRP budget are 12.26% ($326 million) and 13.77% ($366 million), respectively.[15]

## III. 2014 U.S. Climate Action Report Submitted to UNFCCC Secretariat and USGCRP Funding of UN Climate Initiatives:

The U.S. is a treaty party to the United Nations Framework Convention on Climate Change ("UNFCCC").[16] On January 1, 2014, in fulfillment of U.S. reporting obligations under said treaty, the U.S. State Department submitted the 2014 U.S. Climate Action Report to the UNFCCC secretariat. The report makes clear that it was "the First U.S. Biennial Report and Sixth U.S. National Communication to the UNFCCC". It also "details actions the United States is taking domestically and internationally to mitigate, adapt to, and assist others in addressing climate change."[17]

The 2014 U.S. Climate Action Report more specifically describes the types of activities to which U.S. taxpayer monies funding the USGCRP are being directed:

> "USGCRP engages with, *and* ***provides significant financial support for****, a variety of international programs,* ***such as*** *the WCRP,*[18] *the International Geosphere-Biosphere Program, the International Human Dimensions Program, the Earth Systems Science Partnership, DIVERSITAS, the SysTem for Analysis, Research and Training, and the Global Research Alliance on Agricultural Greenhouse Gases.* ***U.S. agencies were among the largest sponsors of WCRP's 2011 Open Science Conference****,*[19] *with more than 1,900 participants from around the world*. In addition, the USDA Foreign Agricultural Service *sponsors* the Global Research Alliance Fellowships, which to date have provided funding for 17 scientists from developing countries to come to the

United States and work directly with U.S. researchers on research priorities and goals of the Alliance" (emphasis added).[20]

"In addition, ***USGCRP-supported*** *researchers continue to play critical and wide-ranging roles in the development of several major international assessments, including the IPCC AR5 (IPCC 2013). They serve as working group co-chairs, coordinating lead authors, lead authors, contributing authors, review editors, and reviewers, and they provide technical support and scientific expertise as reviewers to IPCC assessments and other international efforts. USGCRP coordinates author nominations, as well as government and expert reviews for AR5. It also* ***provides direct financial support for*** *the operations of the IPCC Working Group II Technical Support Unit, which is responsible for coordinating the production of the Working Group II volume, U.S. participation in the production of the Working Group I and III reports, and U.S. participation in the ongoing Scientific Assessment of Ozone Depletion,5 the Special Report on Renewable Energy Sources and Climate Change Mitigation (IPCC 2011), and the Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (IPCC 2012)*" (emphasis added).[21]

"USGCRP *also* ***supports*** *regional activities through the Inter-American Institute for Global Change Research and the Asia-Pacific Network for Global Change Research*, and is working with international partners to foster global change research cooperation in Africa. ***Individual USGCRP agencies provide additional support*** *to other programs and projects that advance collaborative multidisciplinary research relevant to global environmental change and its impacts on society*. These types of global partnerships maximize international scientific exchange and best practices, support complementary research efforts, and allow decision makers to make more informed science-based decisions domestically and globally. Support of these programs provides opportunities for U.S. investigators to work with their counterparts from other countries in a coordinated fashion. These activities enrich national activities on the same subjects, build capacity to conduct research and make observations of environmental change in less-developed countries, and foster advances in understanding of global environmental change in ways the investments of any single nation could not accomplish" (emphasis added).[22]

The WCRP "was established over 30 years ago (in 1980), under the joint sponsorship of the International Council for Science (ICSU)[23] and the World Meteorological Organization (WMO) , and, since 1993, has also been sponsored by the Intergovernmental Oceanographic Commission (IOC of UNESCO)."[24]

Through a number of climate science programs, the "IOC works with developed and developing countries to monitor and document changes to aid design of adaptation and mitigation strategies."[25] For example, the

> "Global Ocean Observing System, GOOS, contributes directly to the actions under the UN Framework Convention for Climate Change as the ocean component of the Global Climate Observation System, GCOS. IOC science programmes support many studies of the impacts of climate change, including the *International Ocean Carbon Coordination Project (IOCCP)*, *World Climate Research Programme (WCRP)*, and the *Ocean Observations Panel for Climate (OOPC)*" (emphasis added).[26]

During 2011, the U.S. government had successfully sought and secured a seat on the UNESCO-IOC's Executive Council"[27] relying, in part, on its representation that,

> "*The United States is consistently among the major contributors of voluntary funds to the IOC…The United States makes significant budgetary and extra-budgetary contributions to the IOC for a variety of programs*. The United States demonstrates its commitment to the IOC through active membership in and support for the IOC's intergovernmental groups, regional subsidiary bodies, and working groups. The United States is dedicated to improving the effectiveness of the IOC through reform measures with special emphasis on coherence, efficiency and high-quality program delivery… *The United States, through the U.S. National Science Foundation, has directly supported the IOC's International Ocean Carbon Coordination Project (IOCCP) with $851,728 over the past four years* (and with two more years anticipated) to facilitate the management of the IOC's major efforts on ocean sequestration, ocean acidification, and the role of the oceans in the Earth's carbon cycle as part of the climate portfolio" (emphasis added).[28]

In addition it would appear, on closer inspection, that the UNESCO-IOC, among its other program activities, also has worked to facilitate UNCLOS ("UN Convention on the Law of the Sea") party governments' implementation of portions of that controversial treaty.[29]

The "ICSU works at the intersection of science and policy, *to ensure that science is integrated into international policy development and that relevant policies take into account both scientific knowledge and the needs of science*. ICSU promotes dialogue and shared understanding between the scientific community, policy makers and society more broadly" (emphasis added).[30]

The ICSU is a member of an informal international partnership called The Science and Technology Alliance for Global Sustainability,[31] which consists of the International Social Science Council (ISSC), Belmont Forum, United Nations Environment Programme (UNEP), United Nations Educational Scientific and Cultural Organization (UNESCO), and United Nations University (UNU), with the World Meteorological Organization (WMO) as observer.[32] "The flagship initiative of the Alliance is *Future Earth*, a 10-year programme of research for global sustainability."[33]

According to the April 2013 report issued by the "Transition Team" for *Future Earth*,

> "*Future Earth is a 10-year international research programme launched in June 2012, at the UN Conference on Sustainable Development (Rio+20) that will provide critical knowledge required for societies to face the challenges posed by global environmental change and to identify opportunities for a transition to global sustainability*. Future Earth will answer fundamental questions about how and why the global environment is changing, what are likely future changes, what are risks and implications for human development and the diversity of life on Earth, and what the opportunities are to reduce risks and vulnerabilities, enhance resilience and innovation, and implement transformations to prosperous and equitable futures. *Future Earth will deliver science of the highest quality, integrating, as necessary, different disciplines from the natural and social sciences (including economic, legal and behavioural research), engineering and humanities*. *It will be co-designed and co-produced by academics, governments, business and civil society from all regions of the wo*rld, encompass bottom-up ideas from the wide scientific community, be solution-oriented, and inclusive of existing international Global Environmental Change projects and related research activities" (emphasis added).[34]

> "Future Earth will build upon and integrate the existing *Global Environmental Change (GEC) Programmes – the World Climate Research Programme (WCRP), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme (IHDP), DIVERSITAS – biodiversity science, and the Earth System Partnership (ESSP)*. It will also have to expand significantly beyond the existing global networks and engage new institutions and researchers" (emphasis added).[35]

Apparently, the *Future Earth* Transition Team, which includes a professor from Stanford University and the Director of the DOC-NOAA-funded Climate Services Initiative at the Earth Institute of Columbia University,[36] had "emerged as a result of the ICSU visioning process on Earth system research for global sustainability and the strategic dialogues on future research priorities developed by the Belmont Forum".[37] The Belmont Forum was formed in 2009 as a "new high-level group" by "the world's main funders of *environmental change research*…Its aim is *to mobilise international resources* at a scale that matches the challenge from global environmental change, in order to catalyse delivery of the environmental science-derived solutions that society needs" (emphasis added).[38]

## IV. 2010 U.S. Climate Action Report, Flawed Peer Review of EPA Endangerment Finding Climate Science, and USGCRP Funding of Future Earth *et al.*:

The 2010 U.S. Climate Action Report previously submitted to the UNFCCC Secretariat described the USGCRP program as follows:

> "During the last three years (2006–2009), the U.S. government has completed a suite of focused assessments addressing high-priority climate research questions. **In an open and transparent manner**, this approach communicates scientific analyses to the public

> via a set of 21 Synthesis and Assessment Products (SAPs) developed by USGCRP (U.S. CCSP/GCRP 2006–2009). These SAPs were synthesized in a single national-scale assessment, *Global Climate Change Impacts in the United States* (GCCI), released in June 2009 (Karl et al. 2009)…**All of the SAPs and the GCCI were extensively reviewed by scientists, federal agency officials, stakeholders, and the general public**. The SAPs build on and integrate cutting-edge research and application activities, advanced over the years by the interagency research efforts in climate and global change."[39]
>
> "Climate change poses unique threats to human health, including direct threats from heat waves or storms, and indirect effects, such as heat-exacerbated air quality impacts on health, or climate-sensitive infectious diseases (Box 6-1; Karl et al. 2009)".[40]

Unfortunately, the U.S. Government's funding of USGCRP climate research and assessment report development activities has hardly been transparent, and appears to have engendered and utilized flawed peer review science process practices at the agency and interagency levels. Indeed, detailed addenda accompanying ITSSD FOIA requests filed with EPA and DOC-NOAA during March – May 2014 strongly suggest that the peer review science processes EPA and DOC-NOAA had employed in vetting the USGCRP and other federal and IPCC agency assessments supporting the EPA's Endangerment Findings did *not* comply with U.S. law. In other words, such peer review processes did not satisfy Information Quality Act and relevant OMB, EPA and DOC-NOAA implementing IQA guidelines standards applicable to highly influential scientific assessments ("HISAs").

Consequently, ITSSD poses the following question: Why should Congress continue to fund with U.S. taxpayer dollars interagency USGCRP program and federal agency-specific (especially DOC-NOAA, NASA, and NSF) climate science-related research and grant-award programs that ultimately produce and/or fund development of U.S. and international climate science-related assessments and findings that are not properly and robustly peer reviewed in accordance with U.S. law?

## V. Recent House Science and Technology Appropriations and the USGCRP:

It was recently reported that the House of Representatives Science Committee approved "a bill that sets policy for the National Science Foundation (NSF) on a straight party-line vote" at a 2015 spending level that "is actually $150 million higher than what President Barack Obama requested for the agency"[41] – namely, $7.3 billion.[42] Assuming this is true, it raises another important question concerning the extent to which Congress can control the way Executive agencies spend appropriated discretionary funds. For instance, how much more than $318 million of the $5.8 billion[43] ($5.727 billion[44]) portion of the $7.3 billion NSF FY2015 budget declared allocable to research and development activities can NSF later utilize to fund domestic and international USGCRP climate research initiatives resulting in the development of climate science-related assessments and findings the vetting of which, like past USGCRP synthetic assessment products, would very likely *not* meet the robust and rigorous peer review requirements of the Information Quality Act?[45]

It also was recently reported that the House of Representatives approved the fiscal year 2015 Appropriations bill (H.R. 4660) introduced by the House Committee on Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies. The bill "funds the Department of Commerce, the Department of Justice, the National Aeronautics and Space Administration (NASA), the National Science Foundation (NSF), and other related agencies. The legislation contains $51.2 billion in total discretionary funding – a reduction of $398 million below the fiscal year 2014 enacted level."[46] According to the Committee Report accompanying the bill, the House had approved a year-to-year funding increase of approximately $233 million for the NSF to approximately $7.4 billion. The Committee recommended that NSF allocate approximately $4.37 billion of this amount to the National Science Board.[47] Whether NSF will actually spend $318 million or more of this amount on USGCRP activities remains to be seen.

The accompanying Committee Report also indicates that the Committee recommended a year-to-year funding increase of $250 million for NASA for FY2015 to approximately $17.9 billion. The Committee recommended that NASA allocated approximately $5.2 billion of this amount to scientific research relating *other than* to climate change.[48]

The Committee Report, furthermore, recommended a year-to-year increase of $10.5 million for DOC-NOAA for FY2015 to approximately $5.33 billion, "prioritiz[ing] funding for National Weather Service (NWS) operations, weather research, and related satellite programs."[49] The Committee recommended that DOC-NOAA utilize $379.8 million of this amount "for Oceanic and Atmospheric Research (OAR) operations, research, and facilities,"[50] $189.2 million for NOAA's Satellite and Information Service (NESDIS) operations, research, and facilities,[51] and $13.5 million for the regionally-focused National Integrated Drought Information System.[52] The Committee, moreover, encouraged DOC-NOAA "to increase funding for academia to perform *independent* climate model evaluation studies and to enable the production of atmospheric data sets from satellite observations for such studies."[53] Apparently, the Committee was well aware that climate science-related research performed by university recipients of DOC-NOAA-grant funded climate research programs has been more coterminous with than independent from the Administration's climate science policy agenda,[54]strongly suggesting that the agency had and could potentially utilize congressionally appropriated funds for unauthorized purposes.

Interestingly, the Appropriations Committee also

> "encourage[d] NOAA-OAR to prioritize…Earth System Prediction Capability (ESPC)…research at its Weather Labs and Cooperative Institutes that supports improvements to weather models associated with prediction of major storms, tropical storm tracks, tornado outbreaks and other hazardous weather phenomena that are essential to warning the public of such hazards, *and not [to] divert funding from these activities to support climate modeling*" (emphasis added).[55]

As noted above, the House Appropriations Committee was likely attuned to the possibility that, because DOC-NOAA is the lead federal agency on climate change, and operated numerous university

climate research grant-funded programs, it would be inclined to use such discretionary funding for such a purpose. The House Minority's and the Administration's subsequent comments appear to reflect frustration with this perspective:

> "[T]here are a number of critical public investments that fall short of the amounts needed, specifically…in…climate research…"[56]

> "[W]e are disappointed that the Committee has once again cut funding for important climate science efforts of NOAA and its external partners. The Committee provides $119 million for NOAA climate research,[57] a cut of $37.5 million (24%) below FY 2014 and $69.3 million (37%) below the Administration's request. In addition, the bill fails to provide the full Administration request for climate-related satellite procurement."[58]

> "[T]he Administration strongly opposes the significant reductions below FY 2014 funding levels *for high priority climate research*…" (emphasis added).[59]

Lastly, the Committee Report adds at least three administrative measures that could possibly ensure against discretionary NSF, NASA or DOC-NOAA diversions of congressional funds to unauthorized climate science-related endeavors. For example, Section 505 prohibits "a reprogramming of funds"[60] that *inter alia* "increases funds or personnel by any means for any project or activity for which funds have been denied or restricted", "reorganizes or renames offices, programs or activities", or "augments funds for existing programs, projects or activities in excess of [the lesser of] $500,000 or 10 percent".[61] Section 521 requires DOC (NOAA), NSF and NASA to provide Congress with written notification no later than fifteen days prior to the reprogramming of "any project…totaling more than $75[million] that has cost increases of at least 10 percent."[62] Section 535 requires DOC (NOAA), NASA and NSF to submit spending plans."[63]

The House Appropriations Committee should promptly revisit whether H.R. 4066, as passed, effectively precludes the use by NASA, NSF and DOC-NOAA of their otherwise allocable agency shares of the President's proposed FY2015 budget for USGCRP funding ($2.51 billion). Such shares would amount to approximately $1.392 billion, $318 million and $348 million, respectively – i.e., to approximately 82% of the annual USGCRP budget. At the very least, the Committee should hold OSTP (which oversees the USGCRP) and these agencies to account for why the peer review processes they had previously employed to vet the highly influential climate science assessments supporting EPA's 2009 GHG Endangerment Findings and the recently released Third National Climate Assessment[64] had not likely complied with the Information Quality Act. Such revelations may well inform the Committee regarding how it can more wisely exercise its appropriations authority, on behalf of 'We the People' to prevent such peer review science process failures from occurring in the future.

**ENDNOTES**

[1] *See* U.S. Global Change Research Program, *About Us – Organization and Leadership*, available at: http://www.globalchange.gov/about/organization-leadership.

[2] *See* The White House, Office of Science and Technology Policy, *OSTP Leadership & Staff*, available at: http://www.whitehouse.gov/administration/eop/ostp/about/leadershipstaff.

[3] *See* U.S. Global Change Research Program, *About – Staff*, available at: http://www.globalchange.gov/about/staff; *Id*., at *Thomas Armstrong- Executive Director, U.S. Global Change Research Program, Office of Science and Technology Policy National Coordination Office (NCO)*, available at: http://www.globalchange.gov/staff/dr-thomas-armstrong.

[4] *See* The White House, Office of Science and Technology Policy, *National Science and Technology Council*, available at: http://www.whitehouse.gov/administration/eop/ostp/nstc.

[5] *See* Our Changing Planet, *U.S. Global Change Research Program for Fiscal Year 2013 - A Supplement to the President's Budget for Fiscal Year 2013*, at p. 39, available at: http://downloads.globalchange.gov/ocp/ocp2013/ocp2013.pdf.

[6] *Id*., at Table A.1, p. 40.

[7] *See* The White House, Office of Science and Technology Policy, *OSTP Initiatives*, available at: http://www.whitehouse.gov/administration/eop/ostp/initiatives#Climate.

[8] *See* The White House, Office of Science and Technology Policy, *The 2015 Budget: Science, Technology, and Innovation for Opportunity and Growth* (March 2014), at p. 1, available at: http://www.whitehouse.gov/sites/default/files/microsites/ostp/Fy%202015%20R&D.pdf.

[9] *Id*., at p. 2.

[10] *Id*., at pp. 6-7.

[11] *See* Our Changing Planet, *U.S. Global Change Research Program for Fiscal Year 2013 - A Supplement to the President's Budget for Fiscal Year 2013*, *supra* at Table 4.1, p. 34.

[12] *Id*.

[13] The White House, Office of Management and Budget, *Federal Climate Change Expenditures Report to Congress* (Aug. 2013), available at: http://www.whitehouse.gov/sites/default/files/omb/assets/legislative_reports/fcce-report-to-congress.pdf.

[14] *Id*., at Table 2, p. 13.

[15] *Id*.

[16] *See* United Nations Framework Convention on Climate Change, *Parties to the Convention and Observer States*, available at: https://unfccc.int/parties_and_observers/parties/items/2352.php.

[17] *See* U.S. Department of State, *2014 U.S. Climate Action Report to the UN Framework Convention on Climate Change*, available at: http://www.state.gov/e/oes/rls/rpts/car6/.

[18] "The World Climate Research Programme is sponsored by the World Meteorological Organization (WMO), the International Council for Science (ICSU) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO." *See* World Climate Research Programme, *The WCRP Mission*, available at: http://www.wcrp-climate.org/index.php/about-wcrp/about-mission. "WCRP organizes meetings, workshops and conferences to coordinate and facilitate climate research. The research itself is done by individual scientists working in national and regional institutes, laboratories and universities. WCRP committees, working groups and projects, assisted by the Joint Planning Staff (JPS), are the main vehicles for setting the research agenda and mobilizing the broader research community on specific activities." *See* World Climate Research Programme, *What We Do*, available at: http://www.wcrp-climate.org/index.php/about-what-we-do. "**Scientific guidance for the WCRP is provided by the Joint Scientific Committee (JSC)**, consisting of **18 scientists selected by mutual agreement between the three sponsoring organizations** and representing climate-related disciplines in atmospheric, oceanic, hydrological and cryospheric sciences. Implementation of WCRP's programme takes place through the Joint Planning Staff (JPS) in Geneva and Paris, **in the International Project Offices (IPOs)** and co-opted contributors from many agencies" (emphasis added). *See* World Climate Research Programme, *The WCRP Governance*, available at: http://www.wcrp-climate.org/index.php/about-wcrp/about-governance. **The WCRP's next Joint Science Committee meeting is scheduled for June 30-July4, 2014 and will be held in Heidelberg, Germany**. It "will include a joint session with the WMO Technical Conference on Climate Services." *Id*. *See* World Climate Research Programme, *WCRP JSC-35 Joint Scientific Committee Thirty-Five Session* (30 June-4 July 2014), available at: http://www.wcrp-climate.org/JSC35/index.html. *See also* World Meteorological Organization, *WMO Technical Conference on Climate*

*Services – Building on CLIPS Legacy, in conjunction with the Sixteenth Session of WMO Commission for Climatology (CCl-16) and the 35th Meeting of the Joint Scientific Committee of World Climate Research Programme* (**30 June – 2 July 2014**), available at: http://www.wmo.int/pages/prog/wcp/ccl/ccl16/teco/index.php. **The Chair of the WCRP Joint Scientific Committee is Antonio J. Busalacchi, Professor of Oceanography, ESSIC, University of Maryland**. *Id*. The University of Maryland's ESSIC ("Earth System Science Interdisciplinary Center") **is U.S. government-funded**. It "is a joint center between the University of Maryland departments of Atmospheric & Oceanic Science, Geology, Geography **and the Earth Sciences Directorate at the NASA/Goddard Space Flight Center**… ESSIC also administers the Cooperative Institute for Climate and Satellites (CICS), which is **sponsored by the NOAA National Satellite, Data, and Information Services (NESDIS) and the NOAA National Centers for Environmental Prediction (NCEP).** The Cooperative Institute for Climate and Satellites (CICS) was created in July 2009 through an agreement between the University of Maryland, College Park(UMCP) **and National Oceanic and Atmospheric Administration (NOAA).** CICS is hosted by the Earth System Science Interdisciplinary Center (ESSIC) and consists of CICS-MD, CICS-NC and a broad consortium of participating scientists and institutions." *See* University of Maryland, *Earth System Science Interdisciplinary Center – About ESSIC*, available at: http://essic.umd.edu/joom2/index.php/about-essic. Other WCRP Joint Scientific Committee members include *inter alia* **Stephen Belcher, Professor of Climate Systems, Met Office Hadley Centre, UK**, Dr Sarah Gille (Officer), Ocean Circulation, of the **DOC-NOAA-funded Scripps Institution of Oceanography**, USA, Dr Frederick Semazzi, Regional Modelling, African Climate, Climate Applications, of **DOC-NOAA-funded North Carolina State University**, and Dr Soroosh Sorooshian Hydrology and Water Cycle, of **DOC-NOAA-funded Univ. of California, Irvine**, USA.

[19] *See* World Climate Research Program, *Open Science Conference - Climate Research in Service to Society* (Oct. 24-28, 2011), available at: http://conference2011.wcrp-climate.org/. The Chair of the WCRP's Science Organizing Committee ("SOC") for this conference was Jim Hurrell of the National Science Foundation's National Corporation of Atmospheric Research ("NCAR"). Other American SOC members included Jerry Meehl and Kevin Trenberth (NSF-NCAR), Koni Steffen, Univ. of Colorado (a major participant in NOAA-funded climate science research programs), and Antonio Busalacchi, ESSIC, Univ. of Maryland. *See* World Climate Research Program, *Open Science Conference – Scientific Organizing Committee*, available at: http://conference2011.wcrp-climate.org/ProgCommittee.html. The Chair of the Conference's Local Organizing Committee (LOC) was David Legler (DOC-NOAA). American members of the LOC included Cindy Schmidt and Jill Reisdorf (NSF-UCAR) and Mike Patterson and Cathy Stephens of the U.S. Climate Variability and Predictability Program (US-CLIVAR). US-CLIVAR is funded (sponsored) by several U.S. federal agencies. "US CLIVAR research is **currently supported by participating programs within five Federal agencies including the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), the Department of Energy (DOE), and the Office of Naval Research (ONR)**. A US CLIVAR Inter-Agency Group of program managers from these five agencies coordinates and **targets funding** and resources to support the research activities of the program" (emphasis added). *See* U.S. Climate Variability and Predictability Program, *About U.S. CLIVAR*, available at: http://www.usclivar.org/about-us-clivar. The Chair and Co-Chairs of US-CLIVAR's nine-member Scientific Steering Committee are, respectively, Robert Weller of the **DOC-NOAA-funded Woods Hole Oceanographic Institution,** Arun Kumar of the **NOAA National Centers for Environmental Prediction**, and Janet Sprintall, of the DOC-NOAA-funded University of California, San Diego/Scripps Institution of Oceanography. Yan Xue of the **NOAA National Centers for Environmental Prediction** is also a member, as are **Tom Farrar of Woods Hole Oceanographic Institution and Gregg Garfin of University of Arizona/School of Natural Resources & the Environment, two DOC-NOAA-funded institutions**. *See* U.S. Climate Variability and Predictability Program, *US CLIVAR Scientific Steering Committee*, available at: http://www.usclivar.org/committees/ssc.

[20] *See* U.S. Department of State, *United States Climate Action Report 2014 - First Biennial Report of the United States of America Sixth National Communication of the United States of America Under the United Nations Framework Convention on Climate Change* (2014) at p. 203, available at: http://www.state.gov/documents/organization/219038.pdf.

[21] *Id*.

[22] *Id*.

[23] "The International Council for Science (ICSU) is a non-governmental organisation with a global membership of national scientific bodies (121 Members, representing 141 countries) and International Scientific Unions (31 Members)." *See* International Council for Science, *About Us*, available at: http://www.icsu.org/about-icsu/about-us.

[24] *See* World Climate Research Programme, *History* available at: http://www.wcrp-climate.org/index.php/about-wcrp/about-history.

[25] See United Nations Educational, Science and Cultural Organization, Intergovernmental Oceanographic Commission, *Mitigation of the Impacts of and Adaptation to Climate Change and Variability*, available at: http://www.unesco.org/new/en/natural-sciences/ioc-oceans/high-level-objectives/climate-change/#c110212. "IOC climate change programmes include: GOOS, Global Ocean Observing System[;] WCRP World Climate Research Programme[;] OOPC Ocean Observations Panel for Climate[;] GLOSS Global Sea Level Observing System[;] OBIS Ocean Biogeographic Information System[;] IOCCP International Ocean Carbon Coordination Project[;] GO-SHIP Global Ocean Ship Based Hydrographic Investigations Programme; Ocean-Acidification[;] GCRMN (Climate Change and ecosystems, coral reefs)[;] GLOBEC (Climate Change and ecosystem dynamics)[;] ACC Africa (Adaptation Climate Change in Africa)[;] ACCC-WAfrica (Adaptation Climate and Coastal Change in West Africa)." *Id*.

[26] *Id*.

[27] *See* United States Department of State, *The United States of America's Candidature for the Executive Council of the Intergovernmental Oceanographic Commission (IOC) 2011-2013*, available at: http://photos.state.gov/libraries/unesco/182433/pdfs/IOC%20Campaign%20Promotional%20Flyer.pdf. See also United Nations Educational, Science and Cultural Organization, *List of current States members of the IOC Executive Council, 2013-2015 (40)*, available at: http://www.ioc-unesco.org/index.php?option=com_oe&task=viewDocumentRecord&docID=3822; http://www.ioc-unesco.org/components/com_oe/oe.php?task=download&id=21883&version=1.0&lang=1&format=1.

[28] *See* United States Department of State, *The United States of America's Candidature for the Executive Council of the Intergovernmental Oceanographic Commission (IOC) 2011-2013*, *supra.*

[29] *See* United Nations Educational, Science and Cultural Organization, Intergovernmental Oceanographic Commission, *UNESCO/IOC/LOS at a Glance*, available at: http://www.ioc-unesco.org/index.php?option=com_content&view=article&id=322&Itemid=100039 ("The UNESCO/IOC/Law of the Sea (UNESCO/IOC/LOS) is the set of activities of the Intergovernmental Oceanographic Commission (IOC) of UNESCO assisting member states in the implementation of Parts XIII [marine research] and XIV [transfer of marine technology to developing countries], in addition to Article 76 [re: substantiating extension of the continental shelf], of the United Nations Convention of the Law of the Sea (UNCLOS)").

[30] *See* International Council for Science, *Science For Policy*, available at: http://www.icsu.org/what-we-do/@@category_search?path=/icsu/what-we-do&Subject:list=Science%20for%20Policy.

[31] The Science and Technology Alliance for Global Sustainability "is committed to making full use of science and technology to inform equitable, sustainable solutions to the most pressing issues currently confronting humankind. Its members envision a sustainable world where decision-making is informed by the best available scientific evidence and knowledge." *See* The Science and Technology Alliance for Global Sustainability, *Promoting Integrated Sustainability Research to Ensure the Future We Want*, available at: http://www.stalliance.org/.

[32] *See* International Council for Science, *Future Earth Transition Team Proposes Three Research Themes*, available at: http://www.icsu.org/news-centre/news/future-earth-transition-team-proposes-three-research-themes.

[33] *Id*. *See also* Future Earth – Research for Global Sustainability, *Who We Are*, available at: http://www.futureearth.info/who-we-are. ("Bringing together existing programmes on global environmental change*, Future Earth will be an international hub to coordinate new, interdisciplinary approaches to research on three themes: Dynamic Planet, Global Development and Transformations towards Sustainability. It will also be a platform for international engagement to ensure that knowledge is generated in partnership with society and users of science. It is open to scientists of all disciplines, natural and social, as well as engineering, the humanities and law."). *Id*.

[34] *See* Transition Team for Future Earth, *Future Earth - Research for Global Sustainability*, Draft Initial Design Report (April 17, 2013), at p.8, available at: http://www.icsu.org/future-earth/media-centre/relevant_publications/FutureEarthdraftinitialdesignreport.pdf. "

[35] *Id*., at p. 9. See also The International Group of Funding Agencies for Global Change Research Belmont Forum, *The Belmont Challenge: A Global, Environmental Research Mission for Sustainability – Final Version* (March 2011), at Executive Summary, pp. 3-4, available at: http://igfagcr.org/sites/default/files/documents/belmont-challenge-white-paper.pdf. ("Evidence is emerging that the rate and magnitude of anthropogenic environmental change is moving towards states beyond our ability to control or adapt to it[fn]. *The Global Environmental Change programmes (IGBP, WCRP; IHDP, DIVERSITAS and their partnership programme ESSP*[fn] *coordinated under the auspices of ICSU*, and international observational programmes (such as GCOS, GEO/GEOSS) have played an important role in directing, synthesizing and communicating research to promote this improved understanding of global environmental change") (emphasis added). *Id.*

[36] *See* International Council for Science, Future Earth Research for Global Sustainability, *Transition Team*, available at: http://www.icsu.org/future-earth/who/transition-team/copy_of_transition-team. *See also* International Council for Science, *Establishment of a Transition Team - Terms of Reference* (June 29, 2011), available at: http://www.icsu.org/future-earth/who/transition-team/ToRsforTransitionTeam.pdf.

[37] *Id*., at p. 3. "The International Group of Funding Agencies for Global Change Research (IGFA) is *a forum for national scientific funding agencies to collaborate in addressing the challenges and opportunities of global environmental change*. The Belmont Forum, *a group of high-level representatives from major funding agencies across the globe*, is the Council of Principals for IGFA. In order to meet the goals of the Belmont Challenge, *the Belmont Forum coordinates funding for collaborative research actions (CRAs).* These high-priority research activities improve the way funding agencies collaborate with each other and develop opportunities for research" (emphasis added). *See* The International Group of Funding Agencies for Global Change Research Belmont Forum, *About IGFA & the Belmont Forum*, available at: http://igfagcr.org/about-igfa-and-the-belmont-forum.

[38] *See* The International Group of Funding Agencies for Global Change Research Belmont Forum, *The Belmont Challenge: A Global, Environmental Research Mission for Sustainability – Final Version* (March 2011), at Executive Summary, p. 1, available at: http://igfagcr.org/sites/default/files/documents/belmont-challenge-white-paper.pdf.

[39] See at pp. 87, 88 available at: http://unfccc.int/resource/docs/natc/usa_nc5.pdf.

[40] *Id*., at p. 89. "The information highlighted in this chapter is taken principally from the GCCI report, which synthesizes much of the analysis in the SAPs and incorporates several other assessments. It provides analyses of ongoing and potential impacts of climate variability and change, adaptability of key systems, and measures that might be taken to reduce vulnerability, including examples of adaptation measures already in evidence." *Id*., at p. 88. Box 6-1 referenced above summarizes the EPA Administrator's endangerment and Cause or Contribute Findings for Greenhouse Gases, which are based largely on the USGCRP SAPs and the IPCC science referenced therein. "In response to a U.S. Supreme Court decision requiring the U.S. Environmental Protection Agency (EPA) to determine whether greenhouse gases (GHGs) endanger human health or welfare, or whether the science is too uncertain to make a determination, the EPA Administrator proposed endangerment and cause or contribute findings under Section 202 (a) of the Clean Air Act in April 2009. The proposed findings then underwent a public comment period. The proposed findings stated that the total body of scientific evidence compellingly supports that GHGs threaten both public health and welfare and that emissions from U.S. vehicles cause or contribute to the problem. On December 7, 2009, EPA finalized the endangerment and the cause or contribute findings. The Administrator reached this conclusion after considering both current and projected future effects of climate change and the full range of risks and impacts to public health and welfare in the United States, as well as extensive public comments." *Id*., at Box 6-1, p. 89.

[41] *See* Jeffrey Mervis, *Amid Partisan Split, U.S. House Panel Approves Controversial NSF Bill*, Science (May 29, 2014), available at: http://news.sciencemag.org/funding/2014/05/amid-partisan-split-u-s-house-panel-approves-controversial-nsf-bill.

[42] *See* The White House, Office of Science and Technology Policy, *The 2015 Budget: Science, Technology, and Innovation for Opportunity and Growth* (March 2014), at pp. 1, 3. *See also* United States National Science Foundation, *FY2015 Budget Request to Congress*, at p. 3, available at: http://www.nsf.gov/pubs/2014/nsf14041/nsf14041.pdf (reflecting an NSF proposed budget of $7,255 billion).

[43] *See* The White House, Office of Science and Technology Policy, *The 2015 Budget: Science, Technology, and Innovation for Opportunity and Growth* (March 2014), *supra* at Table 2 - Interagency Science and Technology Initiatives.

[44] *See* United States National Science Foundation, *FY2015 Budget Request to Congress*, *supra* at p. 3.

[45] *See* Institute for Trade, Standards and Sustainable Development, *ITSSD Embarks on Public "Education Campaign" To Ensure Federal Agency Peer Review Science Processes Used to Vet Climate Assessments Supporting EPA's 2009 Greenhouse Gas Endangerment Findings Met Information Quality Act Requirements*, Press Release (May 22, 2014), available at: http://www.itssd.org/press-releases-1.html.

[46] *See* The U.S. House of Representatives Committee on Appropriations, *House Passes Fiscal Year 2015 Commerce, Justice, Science Appropriations Bill*, Press Release (May 30, 2014), available at: http://appropriations.house.gov/news/documentsingle.aspx?DocumentID=381677.

[47] *See* U.S. House of Representatives, *Report accompanying Commerce, Justice, Science, and Related Agencies Appropriations Bill, 2015* (Report 113–448), 113th Cong., 2d. Sess. (May 15, 2014), at pp. 83, available at: http://www.gpo.gov/fdsys/pkg/CRPT-113hrpt448/pdf/CRPT-113hrpt448-pt1.pdf. *See also* Brian Stallard, *House Slaps NASA's Wrist, But Raises Budget*, Nature World (June 2, 2014), available at: http://www.natureworldnews.com/articles/7350/20140602/house-slaps-nasas-wrist-raises-budget.htm () Id.

[48] *See* U.S. House of Representatives, *Report accompanying Commerce, Justice, Science, and Related Agencies Appropriations Bill, 2015* (Report 113–448), 113th Cong., 2d. Sess. (May 15, 2014), at pp. 67, 69-72, available at: http://www.gpo.gov/fdsys/pkg/CRPT-113hrpt448/pdf/CRPT-113hrpt448-pt1.pdf. *See also* Brian Stallard, *House Slaps NASA's Wrist, But Raises Budget*, Nature World (June 2, 2014), available at: http://www.natureworldnews.com/articles/7350/20140602/house-slaps-nasas-wrist-raises-budget.htm () Id.

[49] *Id*., at p. 19.

[50] *Id*., at p. 24.

[51] *Id*., at p. 29.

[52] *Id*., at p. 24.

[53] *Id*.

[54] *See* Institute for Trade, Standards and Sustainable Development, *FOIA Request Clarification of FOIA Request No. DOC-NOAA-2014-000714* (May 5, 2014), available at: http://nebula.wsimg.com/c25e625aa81981536c980ec0f3307791?AccessKeyId=39A2DC689E4CA87C906D&disposition=0&alloworigin=1 (describing, in part, the various universities and professors participating in DOC-NOAA climate science-related grant-funded research programs, including the Cooperative Institutes Program, the Climate and Societal Interactions ("CSI") Program and subprograms, the Coastal and Ocean Climate Applications ("COCA") Program and related projects, the Regional Integrated Sciences and Assessments ("RISAs") Program and related projects, the International Research and Applications Project ("IRAP"), the Sectoral Applications Research Program ("SARP") and the National Integrated Drought Information System ("NIDIS")). *Id*., at pp. 8, 17, 25-26, 30-31, 33-37, 40 and accompanying footnotes.

[55] *Id*.

[56] *Id*., at p. 133.

[57] *Id*., at p. 26.

[58] *Id*., at p. 133.

[59] *See* Executive Office of the President, Office of Management and Budget, *Statement of Administrative Policy, H.R. 4660 — Commerce, Justice, Science, and Related Agencies Appropriations Act, 2015 (Rep. Rogers, R-KY)*, at p. 2, available at: http://www.whitehouse.gov/sites/default/files/omb/legislative/sap/113/saphr4660h_20140528.pdf.

[60] "Section 505 of the bill contains language concerning the reprogramming of funds between programs, projects and activities. The Committee reminds the departments and agencies funded in this bill that the reprogramming process is based on comity between the Congress and the Executive Branch. This process is intended to provide departments and agencies sufficient flexibility to meet changing circumstances and emergent requirements not known at the time of congressional review of the budget while preserving congressional priorities and intent. *In the absence of comity and respect for the prerogatives of the Appropriations Committees and the Congress in general, the Committee may opt to include specific program limitations and details in legislation and remove language providing the flexibility to reallocate funds. Under these circumstances, programs, projects and activities become absolutes and the executive branch shall lose the ability to propose changes in the use of appropriated funds except through legislative action*. The Committee expects that each department and agency funded in this bill shall follow the directions set forth in this bill and the accompanying report, and shall not reallocate resources or reorganize activities except as provided herein. Reprogramming procedures

shall apply to funds provided in this bill, unobligated balances from previous appropriations Acts that are available for obligation or expenditure in fiscal year 2015, and non-appropriated resources such as fee collections that are used to meet program requirements in fiscal year 2015" (emphasis added). *Id*., at p. 6.

[61] *Id*., at Sec. 505(3), (5), (7).

[62] *Id*., at Sec. 521; p. 6.

[63] *Id*., at Sec. 535, pp. 89, 109.

[64] The ITSSD will soon release its analysis of how the peer review science processes employed to vet the climate science underlying the Third National Climate Assessment did not meet the Information Quality Act standards applicable to highly influential scientific assessments ("HISAs").