

Max 4 pages.

Please return to your liaison officer at the Secretariat by 1 February 2015.

1. Key scientific highlights/findings

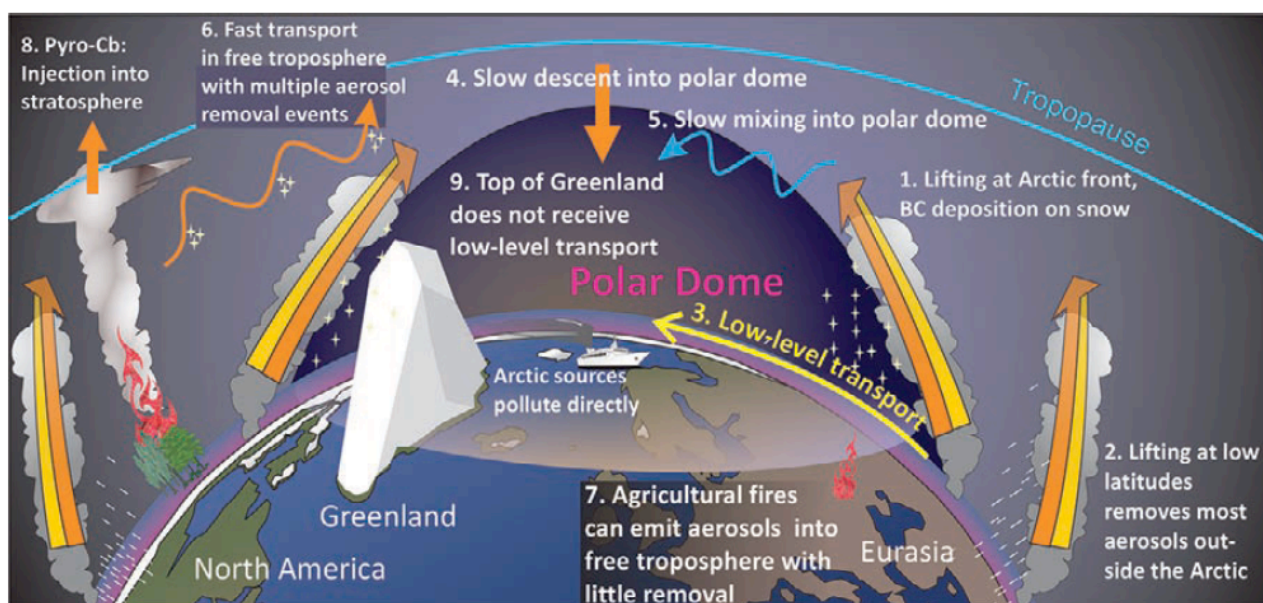
Describe **up to three** recent scientific highlights/findings with text (max. 200 words per highlight), a figure and reference. Please focus on results that would not have happened without the project.

Information for: IGBP Annual Report, reports to funding agencies & outreach

Arctic Air Pollution: New Insights From POLARCAT-IPY

A review paper is recently out in BAMS ([Law et al., 2014](#)) which highlights findings from the international POLARCAT (Polar Study using Aircraft, Remote Sensing, Surface Measurements and Models, Climate, Chemistry, Aerosols and Transport) project, which was an IGAC task and International Polar Year (IPY) activity (2006-2014), coordinated by Andreas Stohl (NILU) and Kathy Law (LATMOS/CNRS/UPMC/UVSQ). POLARCAT was also co-sponsored by iLEAPS and SPARC. POLARCAT's main goal was to improve understanding about the origins of air pollution transported to the Arctic. The review highlights results based on more than 85 papers published on POLARCAT results including analysis and modelling of data collected during POLARCAT aircraft, ship and ground-based field campaigns in spring and summer 2008. Major findings center around origins and transport of pollution to the Arctic, processes governing aerosol composition and their impact on climate, chemical processes governing tropospheric ozone, and the role of boreal forest fires compared to anthropogenic pollution. Areas requiring further investigation are also highlighted.

Law, KS, A Stohl, et al. (2014) [Arctic Air Pollution: New Insights from POLARCAT-IPY](#) *Bulletin of the American Meteorology Society*.



Schematic showing pathways for the transport of air pollution into the Arctic (Law et al., 2014).

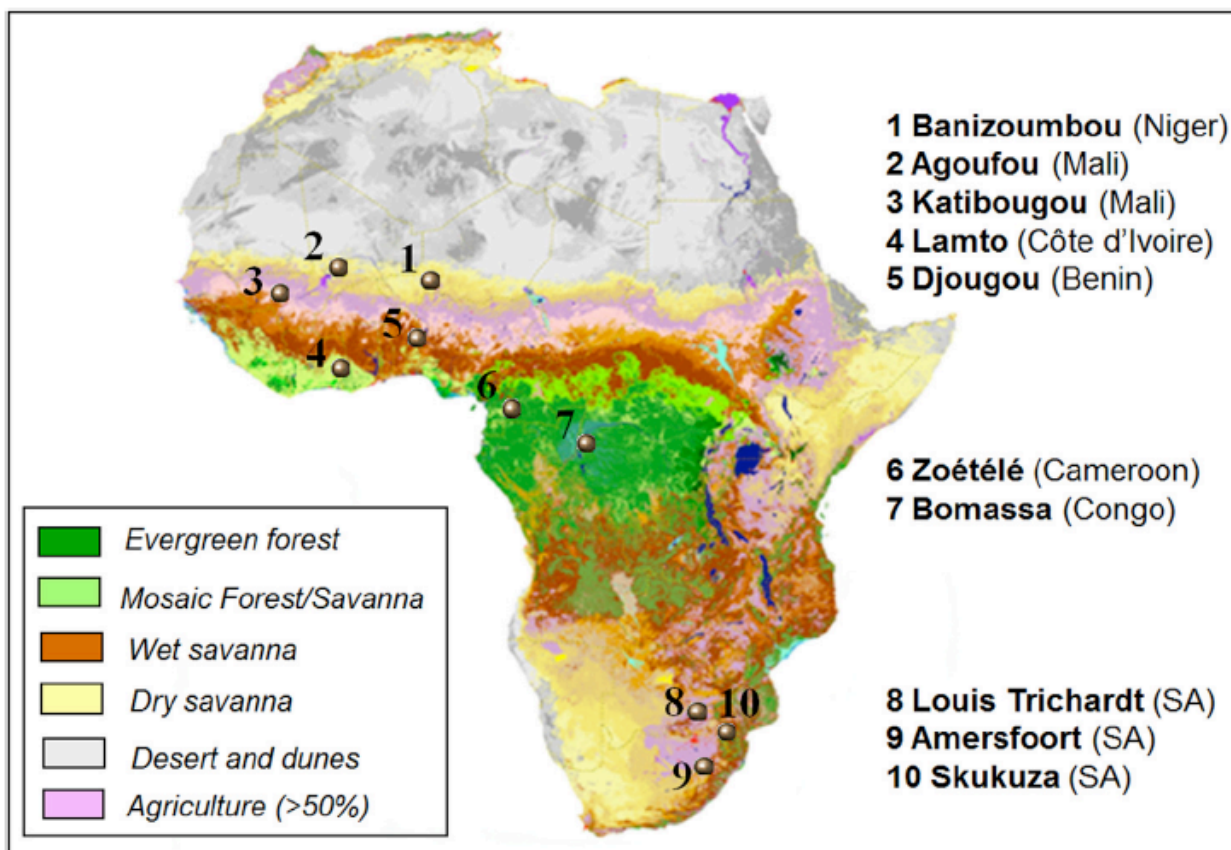
IGAC Activity DEBITS Contributes to International Assessment of Deposition

The IGAC Activity "Deposition of Biogeochemically Important Trace Species" (DEBITS), one of its longest-running activities, was central to the recently published assessment entitled "A global assessment of precipitation chemistry and deposition of sulfur, nitrogen, sea salt, base cations, organic acids, acidity and pH, and phosphorus". The [assessment](#) is available in an open access Special Issue in *Atmospheric Environment*. In particular, the establishment of the IDAF

(IGAC/ DEBITS/Africa) monitoring network provided the first consistent measurement of wet and dry deposition in Africa. Although the number of monitoring sites in Africa needs to be increased, the current sites provide long term data sets that will be pivotal in quantifying the future impacts of sulfur emissions in Africa as the population of many African cities increases energy demand and hence sulfur emissions.

Vet, R, RS Artz, S Carou, et al. (2014) [A global assessment of precipitation chemistry and deposition of sulfur, nitrogen, sea salt, base cations, organic acids, acidity and pH, and phosphorus](#) (2014), *Atmospheric Environment*.

*This is a WMO sponsored assessment that includes observations and input from the IGAC Activity DEBITS.



Vegetation and location map of the 10 measurement stations of the IDAF monitoring network.

2. Transition to Future Earth

Describe the status of the project's transition to Future Earth, outlining any concerns or issues. Append the transition statement to Future Earth if this has been written.

Information for: strategic development.

IGAC plans to transition to Future Earth by the end of 2015. The transition document will be discussed and approved by the IGAC SSC at its 2015 meeting in Potsdam, Germany, during the week of 28 September, and submitted shortly thereafter to Future Earth.

IGAC views Future Earth as a genuine opportunity for the international atmospheric chemistry community to enhance its connection between its core strengths – strong laboratory, field and modelling studies on emissions, atmospheric processes and atmospheric composition – and the larger Earth system research community, as well as the broader community of related stakeholders. Through Future Earth, IGAC can promote international collaborations and co-design the scientific knowledge required to respond effectively to the challenges and opportunities of global environmental change and sustainability.

However, IGAC does have concerns about transitioning to Future Earth. In particular the level of funding for annual SSC meetings Future Earth is providing in 2015, €15k, is insufficient to hold an SSC meeting and it is not clear what the funding will be in 2016. In addition, it seems that Future Earth continues to state the importance of core projects, but

their actions speak differently. There are many task forces and initiatives being launched under “Future Earth” that have little or no involvement from or connection to core projects. Finally, there is concern that *disciplinary science within Future Earth is not valued, but IGAC feels strongly that* interdisciplinary research is only as strong as the disciplines it brings together. There is a strong need to continue to develop communities around disciplines that can then be brought together for interdisciplinary work.

3. Publications

Provide full references of **up to 10** publications in the peer-reviewed literature *as a result of the project* during 2013-14. Include any key publications in press.

Information for: IGBP Annual Report

Format: author list (surname and initials (one space but no full stops between initials), year of publication, article title, full title of publication (italics), volume, page numbers, DOI.

- Law, KS, A Stohl, et al. (2014) [Arctic Air Pollution: New Insights from POLARCAT-IPY](#) *Bulletin of the American Meteorology Society*.
- Vet, R, RS Artz, S Carou, et al. (2014) [A global assessment of precipitation chemistry and deposition of sulfur, nitrogen, sea salt, base cations, organic acids, acidity and pH, and phosphorus](#) (2014), *Atmospheric Environment*.

*This is a WMO sponsored assessment that includes observations and input from the IGAC Activity DEBITS.

4. International Project Office

Describe the status of the IPO funding, node/foci offices and sponsors. Note any resource concerns. Exact figures are requested in a separate excel template from Lin Olsson.

Information for: strategic development, fundraising.

IGAC's current funding cycle will terminate June 2015. A proposal was submitted to US NSF, NASA, and NOAA on 5 December 2014 for continued funding of the IGAC IPO from July 2015-June 2018. The proposal is currently under review and a decision will be made about whether the proposal should be funded late March or early April 2015. The budget for this proposal was decreased by ~\$200K from the prior 3-year funding cycled based on the amount of funding each agency was willing to put toward IGAC. This means if the proposal is funded IGAC will only have enough to fund the executive office, with very little travel support remaining for its sponsored workshops and early career travel grants to its biennial conferences. In addition, the proposal only allowed for one staff member, the Executive Officer. Therefore, if the proposal is funded, IGAC will remain very under-staffed, even though the demands on the IPO continue to increase.

5. Other comments (such as additional highlights, eg media, conferences, reports, awards)

Additional Highlights:

Over the 25 years of IGAC, the project has evolved with the dimensions, the capabilities and the needs of the international atmospheric chemistry community. Today, the role of IGAC is to provide the intellectual leadership and create networks to foster international science collaborations. This is achieved by IGAC through providing leadership to the community on how to link communities working on fundamentals such as emissions, atmospheric processes and atmospheric composition with each other, and with the larger global change and sustainability communities. In addition, IGAC builds the network(s) to foster international science collaborations through capacity building for early career and developing country scientists, facilitating national/regional working groups, sponsoring the biennial science conferences and sponsoring/endorsing workshops.

This model has proven to be extremely successful. For example, in 2014 the UNEP Coalition for Climate and Clean Air (CCAC) received funding to write an assessment of short-lived climate pollutants (SCLPs) in the Latin America-Caribbean region (LAC). Through the formation of the IGAC Americas Working Group, IGAC had already formed a large, well-connected network of atmospheric scientists in the LAC region. Therefore, IGAC was able to work with CCAC to provide information on the scientists with best expertise, and access to these scientists as authors for the LAC region assessment. Although this is not a “scientific” highlight, it is a highlight for IGAC over the past year as it demonstrates the need for having an entity such as IGAC that expends significant effort on creating and maintaining a large international network composed of smaller national/regional networks. In addition, the LAC scientists and their

high-quality regional work will have gained significant international exposure through being authors on such an assessment, which will in turn foster further international collaborations. A similar development for the Asian region is now in discussion, with a first formative workshop sponsored by IGAC having been held in Bangkok on March 2-3, 2015.

Conferences:

22-26 September 2014, Changing Chemistry in a Changing World, Natal, Brazil



The 13th Quadrennial iCACGP Symposium/13th IGAC Science Conference on Atmospheric Chemistry took place at the Natal Convention Center, with the theme *Changing Chemistry in a Changing World*. The conference had six sessions: (1) Atmosphere-surface interaction in a changing climate; (2) Atmospheric chemistry and the coupling between biogenic and anthropogenic emissions; (3) Interactions between aerosols, clouds and precipitation; (4) Atmospheric chemistry and urbanization: from local to global scales; (5) Atmospheric chemistry fundamentals; and (6) Atmospheric chemistry in a changing world. This was the first time IGBP or any of its core projects have held a science conference in South America. The conference had approximately 425 participants from 46 different countries, demonstrating the true breadth of the international IGAC community. The conference also had a strong Young Scientists Program that began with a short course on the topics of each session, career development talks, and a best oral and poster presentation competition. Approximately 70 young scientists received travel grants to attend the conference with funding coming from IGAC, WMO, ESA, ACCENT Plus, IGBP Brazilian Regional Office, and locally from the Brazilian government and universities.

26-Feb-2015

Compiled by Megan L. Melamed, IGAC Executive Officer