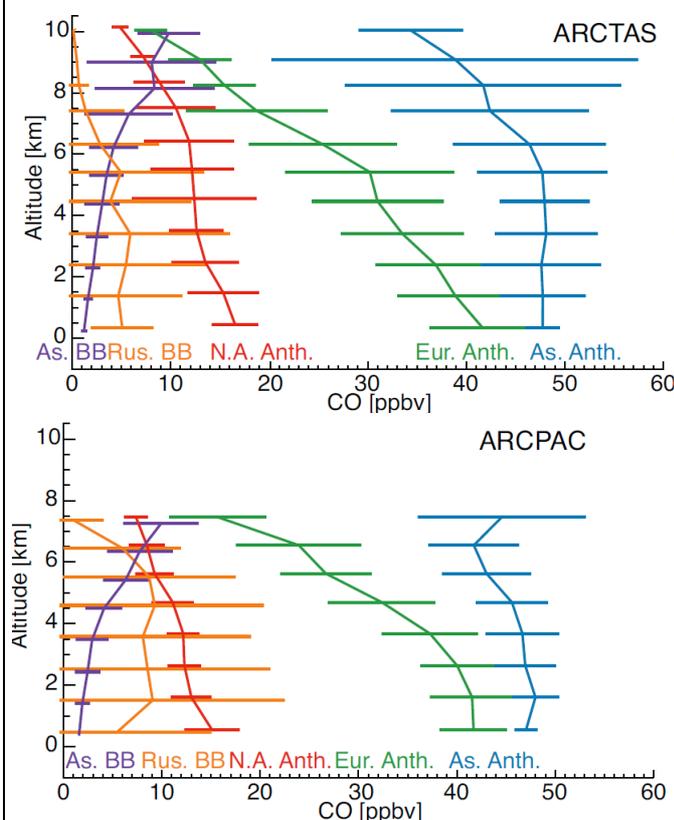


Throughout this report, please note collaboration with other IGBP and ESSP projects, IGBP National Committees, networking organisations (IAI, APN), ICSU bodies, etc., and where the work contributes to IPCC.

1. Scientific highlights

Describe three (or more) recent scientific highlights with text (max. 200 words per highlight), a figure and references. Please focus on results that would not have happened without the project.

Information for: reporting/fundraising & outreach



POLARCAT Task

POLARCAT was the most recent of the multinational IGAC activities to look at intercontinental transport and chemical transformation of atmospheric constituents, in this case focusing on the Arctic. The effort involved multiple platforms (land-based, ship, aircraft, satellites) and models, with participants from N. America, Europe, and Russia.

(Left) These figures show the median vertical distribution of carbon monoxide along the ARCTAS and ARCPAC flight tracks in the GEOS-Chem model, tagged by source region and type: Asian anthropogenic (blue), European anthropogenic (green), North American anthropogenic (red), Russian biomass burning (orange) and Southeast Asian biomass burning (purple). Horizontal bars are standard deviations. ARCTAS and ARCPAC were the Spring, 2008 field campaigns of NASA and NOAA, respectively, which contributed to POLARCAT [From Fisher et al., 2010]

As these data indicate, Asian anthropogenic emissions are the dominant source of Arctic CO pollution everywhere except near the surface, where European anthropogenic emissions are of comparable importance. This results, in part, from the relatively intense CO emissions from Asia countries, coupled with the long atmospheric lifetime of CO which allows it to be transported long distances in the atmosphere.

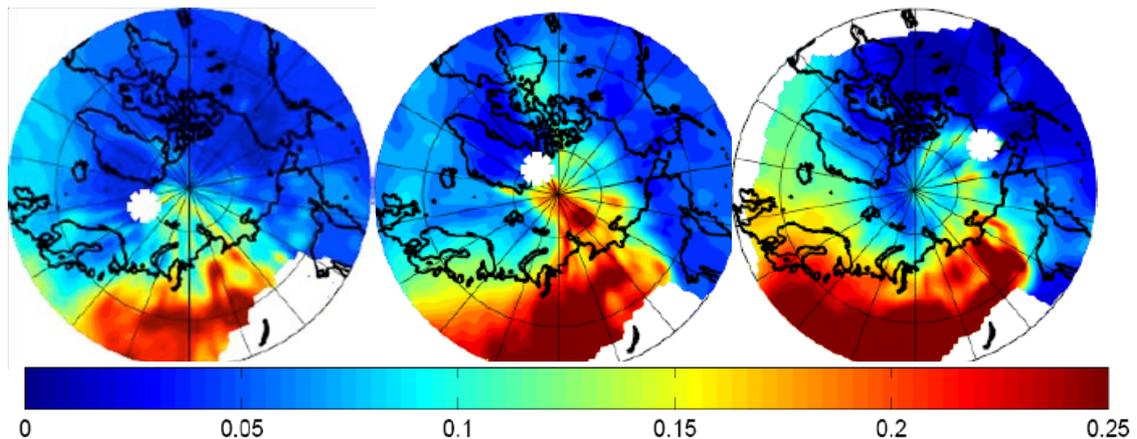
Fischer, J.A., D.J. Jacob, M.T. Purdy, M. Kopacz, P. LeSager, C. Carouge, C.D. Holmes, R.M. Yantosca, R.L. Batchelor, K. Strong, G. S. Diskin, H.E. Fuelberg, J.S. Holloway, E.J. Hyer, W.W. McMillan, J. Warner, D.G. Streets, Q. Zhang, Y. Wang and S. Wu: Source attribution and interannual variability of Arctic pollution in spring constrained by aircraft (ARCTAS, ARCPAC) and satellite (AIRS) observations of carbon monoxide, *Atmos. Chem. Phys.*, 10, 977–996, 2010.

In contrast, *Hirdman et al. (2010)* looked at the sources of black carbon for the highest and lowest concentration events at three surface stations where black carbon is measured. They found that during winter & spring (Dec-Feb & Mar-May):

High concentration events at Spitzbergen, Alert, and Barrow are dominated by long range transport from Northern Eurasia (see figure below).

Low concentration events are from source-free regions or from areas that experience strong precipitation scavenging such as the north Atlantic Ocean (Spitzbergen, Alert) or Pacific Ocean (Barrow).

This difference in the sources of CO and black carbon in near-surface Arctic air can be explained at least in part by the relatively shorter lifetime of BC vs. CO. BC is scavenged from the atmosphere in wet precipitation (rain, snowfall), whereas CO is not.



(Above) Relative source area contributions for the top 10 percentile of black carbon concentrations as measured in the months of Dec-Feb for the years 2002-2007 for (white asterisks) Zeppelin station on Spitzbergen (left), Alert, Canada (middle), and Barrow, Alaska (right).

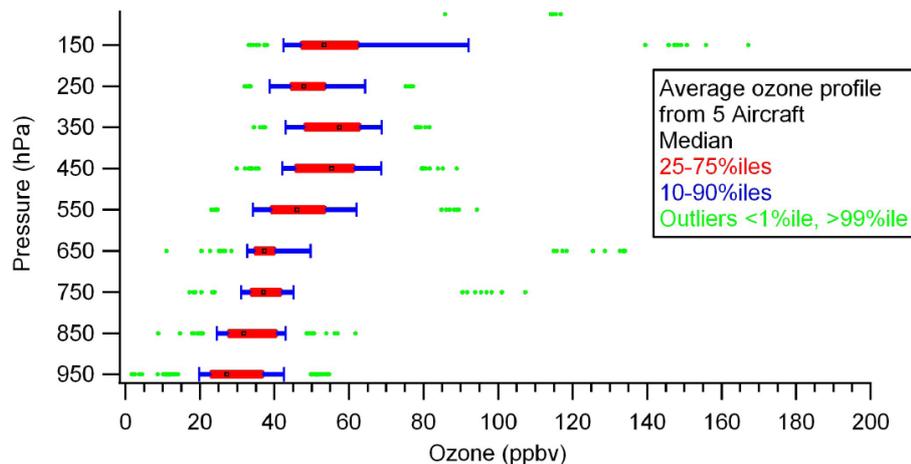
Hirdman, D., H. Sodemann, S. Eckhardt, J. F. Burkhardt, A. Jefferson, T. Mefford, P. K. Quinn, S. Sharma, J. Ström, and A. Stohl: Source identification of short-lived air pollutants in the Arctic using statistical analysis of measurement data and particle dispersion model output, *Atmos. Chem. Phys.*, 10, 669–693, 2010.

AMMA-AC Task

The African Monsoon Multidisciplinary Analysis (AMMA) is an international project to improve our knowledge and understanding of the West African Monsoon (WAM) and its variability. It is motivated by an interest in fundamental scientific issues and by the societal need for improved prediction of the West African Monsoon and its impacts on West African nations. The IGAC Task AMMA-AC specifically has coordinated the aspects of the AMMA study that have to do with atmospheric chemistry, putting special emphasis on the engagement of young and African scientists.

AMMA-AC analysis continues, and a suite of new papers came out in the Atmospheric Chemistry and Physics journal Special Issue on AMMA Tropospheric Chemistry and Aerosols. Below are just two science highlights from the Special Issue.

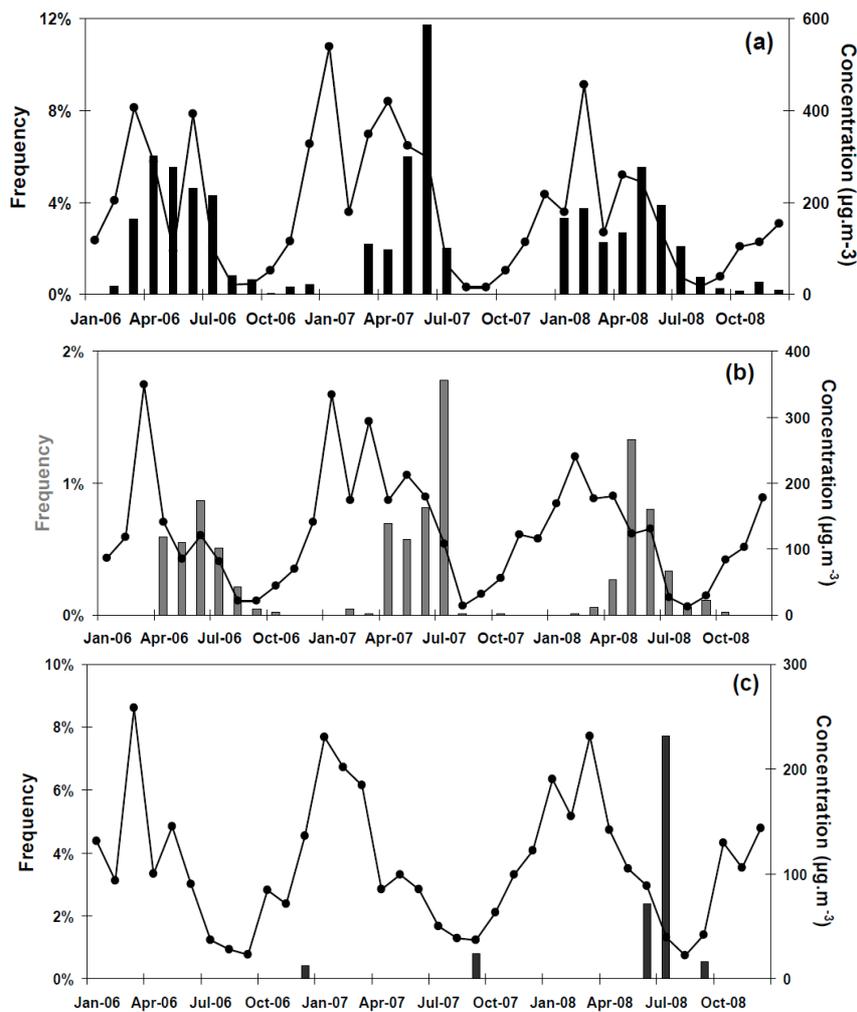
Reeves et al. (2010) summarized some of the key atmospheric chemistry-related findings of AMMA-AC. The region is influenced by a complex array of processes: strong, deep convection in “Mesoscale Convective Systems” (MCSs), lofting of mineral dust from deserts, biomass burning emissions, and strong north-south gradients in humidity and land surface characteristics.



(Above) The summertime vertical distribution of ozone was found to have an “S” shaped profile, with a maximum in the median concentration at ~400hPa, then a decrease at ~250hPa and an increase again at 150hPa, as seen in this profile built from the collective data from British, French and German research aircraft. This results from a series of influences that demonstrate the complexity of the region: The minimum at 250hPa results from the detrainment of low-ozone air in vertical convection. The maximum in the outliers at 650hPa is associated with biomass burning plumes in the southern part of the study region, with photochemical production of ozone within the plumes. Decreases in the near-surface ozone result from losses via rapid deposition to forested areas and photochemical destruction in moist monsoon air. (Credit: Reeves et al., 2010).

C. E. Reeves, P. Formenti, C. Afif, G. Ancellet, J.-L. Attié, J. Bechara, A. Borbon, F. Cairo, H. Coe, S. Crumeyrolle, F. Fierli, C. Flamant, L. Gomes, T. Hamburger, C. Jambert, K. S. Law, C. Mari, R. L. Jones, A. Matsuki, M. I. Mead, J. Methven, G. P. Mills, A. Minikin, J. G. Murphy, J. K. Nielsen, D. E. Oram, D. J. Parker, A. Richter, H. Schlager, A. Schwarzenboeck, and V. Thouret: Chemical and aerosol characterisation of the troposphere over West Africa during the monsoon period as part of AMMA, *Atmos. Chem. Phys.*, 10, 7575-7601, 2010.

The Sahara is one of the most significant sources of atmospheric mineral dust in the world, affecting climate, air quality, and meteorological systems (when incorporated into cloud systems) and surface marine productivity (when deposited to the ocean). Before AMMA, monitoring of Saharan dust was almost exclusively done via satellite. However, there are some differences in the processes that determine surface level concentrations of dust versus total-column burdens of dust, with the latter being what is measured via satellite. Therefore, under AMMA monitoring stations have been established at three sites at ~14°N latitude across the Sahel, along the north-south transition between the more tropical south and the desert north. Marticorena et al. (2010) used three years of data (2006-2008) from these stations to examine what controls high-dust events along this belt. There was a remarkable amount of station-to-station consistency given their longitudinal separation: 2.6°E (Banizoumbou), 5.9°E (Cinzana) and 16.9°E (M'Bour). The region studied is characterized by two main seasons: in boreal winter is the Harmattan season, characterized by dry, northeasterly wind, and the summertime is the wet season, when the ITCZ moves north. Because dust is lofted and transported by wind, the expectation is that peaks in wind speed during the Harmattan season would be associated with the highest concentration dust events. However, Marticorena et al. found that the peak in dust preceded the peak in winds (see figure below), and that two factors drove the seasonal cycle in dust concentrations at these sites: First, the maximum in the seasonal cycle is driven by long-range transport of Saharan dust and so is not correlated with local wind speeds. Second, the end of the dust period is characterized by high winds associated with the beginning of convective activity which brings precipitation to the Sahel. These local high surface winds loft dust locally and produce late-season extremes in the daily mean dust concentrations that sometime match those of during the heart of the dry season. Thus, both the seasonal cycle in Saharan dust lofting and transport and locally-generated dust need to be understood in order to explain surface dust concentrations in this latitude band.



(Above) Monthly frequency of high wind speeds (black bars, corresponding to wind speed >7m/s; gray bars, wind speed >6m/s) and monthly mean concentration of dust (black line with circles) in (a) Banizoubou, (b) Cinzana and (c) M'Bour from January 2006 to December 2008. [From Marticorena et al., 2010].

B. Marticorena, B. Chatenet, J. L. Rajot, S. Traoré, M. Coulibaly, A. Diallo, I. Koné, A. Maman, T. NDiaye, and A. Zakou: Temporal variability of mineral dust concentrations over West Africa: analyses of a pluriannual monitoring from the AMMA Sahelian Dust Transect, *Atmos. Chem. Phys.*, 10, 8899-8915, 2010.

2. Findings and Activities

Describe (a) the major findings in 2010 and (b) list your activities, e.g., research projects, special events (conferences, workshops), model and data intercomparisons, global datasets, etc.

Information for: reporting/fundraising & outreach.

(a) Major Findings

This past year has been a transitional one for IGAC, with many of the IGAC Tasks moving into their final synthesis stages, and new synthesis activities starting up. The major scientific findings come out of the two IGAC Tasks with coordinated, international field campaigns discussed in Section 1: POLARCAT and AMMA-AC. Above we share a few of the findings from these activities; there are many more that are too extensive to list here. Instead we refer you to the special issues associated with these two projects (see Section 7, Publications, below). Major findings of the IGAC Megacities Task are spread across a large number of publications, and these are being synthesized into the IGAC Megacities Assessment report.

Two major efforts of IGAC in 2010 were working toward completion of the IGAC/WMO Megacities Assessment and the IGAC report on Bounding the Role of Black Carbon in Climate. Both are very near completion, but we reserve releasing their major findings/conclusions until they are ready for publication.

(b) List of Activities

- 13-15 April 2010, Megacities and Coastal Zones FTI workshop
 - This FTI is a joint activity of SOLAS, IGAC and LOICZ which specifically looked at how atmospheric chemistry in coastal urban areas affects and is affected by interactions with the coastal marine environment. A report from the workshop is in preparation and will constitute a contribution to the wider Megacities and Coastal Zone IGBP Synthesis.
- 19-21 May 2010, AMMA-Africa meeting, Abidjan, Côte d'Ivoire
 - With the intensive field phase of AMMA completed, focus has shifted to maintenance of measurements (e.g. ground stations) established under AMMA, establishing leadership and coordination within Africa to continue AMMA-related research, and planning next steps. IGAC SSC member Abdourahamane Konare is leading the group planning for the African activity on Weather, Climate and Atmospheric Chemistry.
- 26-28 May 2010, Bounding the Role of Black Carbon in Climate report Lead Authors' meeting, Boulder, Colorado
 - The third meeting of the Bounding BC lead authors was held, with focus on the synthesis sections of the document. The report is in final editing stages and should be submitted for publication (to either ACP or JGR) by May, 2010. This is considerably later than we'd originally planned for this report, but there is significant and unexpected amount of new analysis included in the report.
- 11-16 July 2010, IGAC Open Science Conference, "Challenging the Future", held joint with CACGP, Halifax, Canada
 - This was the major event for IGAC of 2010, hosted by IGAC SSC member Prof. James Drummond of Dalhousie University. Major sub-themes of the conference were: 1. Climate chemistry interactions; 2. Observing atmospheric composition; 3. Chemistry at the interfaces; 4. Trace gas and aerosol source strengths; 5. Pollutant transformation and loss
 - The conference had ~370 participants, with 65 oral presentations, and over 400 posters. As with past conferences, a major focus was the young scientists program, which included an icebreaker event, a chance to meet with senior scientists, a soccer game, a poster competition and funding support aimed specifically at young scientists. The IGAC Core Project office coordinated the funding to support the participation of 47 of the young scientists to attend the conference. Six of the young scientists won our conference-wide poster competition, and will be contributing articles about their posters to the next issue of the *IGACtivities* science newsletter.
- 9-10 & 17 July 2010 25th IGAC SSC meeting, Halifax, Canada
- 15 July 2010, Megacities Assessment Lead Authors' meeting, Halifax, Canada
 - Chapter leads of this IGAC/WMO Assessment report met to determine final steps needed to complete the report. Action items were decided on and circulated. The report is in its final editing stage and is expected to be completed by late Spring 2011.
- 29 September 2010, meeting of the lead organizers of the Aerosols, Clouds, Precipitation and Climate (ACPC) joint iLEAPS/IGAC/GEWEX initiative, Bern, Switzerland
 - With the ACPC Science Plan now published, this workshop focused on planning the first ACPC field experiment, which will take place in Brazil. The U.S. Dept. of Energy will be deploying the



ARM (Atmospheric Radiation Monitoring) Mobile Facility (AMF) to Brazil, and the ACPC team plans to leverage this to get the comprehensive suite of measurements needed, as described in the ACPC Science Plan. They are in the process of planning a workshop with Brazilian partners in the coming months to discuss campaign logistics.

- Bjorn Stevens (GEWEX) stepped down as ACPC co-chair. Graham Feingold of the IGAC SSC will take his place, with Andi Andreae (iLEAPS) continuing as the other co-chair.
- It was decided that the membership of the ACPC steering group needed to be expanded. As such, invitations were sent out to six new members with broad geographic and expertise representation and positive responses have been received.
- 4-6 October 2010, first meeting of SAT-ACPC, a new component of ACPC to address specifically how satellite-based measurements can be best used to improve our understanding of the role of aerosols in precipitation processes.
 - This aspect of ACPC is still in the exploratory stage, but an initial plan for doing a focused joint satellite + modelling study in Brazil is being considered. This will be discussed at the ACPC meeting with Brazilians later this year. In addition to contributions to the ACPC field measurements, it is expected that Brazilian modelers will play a large role in SAT-ACPC.
- February, 2011: A proposal was put forward by a group of atmospheric chemists in China, lead by IGAC co-chair Tong Zhu, to form an IGAC China Working Group. Their goal is to facilitate the coordination of research both within China and between Chinese scientists and the international community. They would liaise with the IGBP China National Committee and work with them to help advance IGBP and IGAC research priorities. This proposal is being considered by the IGAC SSC but is expected to meet with approval, based on positive discussions at our 2010 SSC.

3. Contributions to IGBP Integration

(a) List your activities (ongoing or planned) which contribute to the broader integrative aims of IGBP (interdisciplinary initiatives, joint activities with other core projects, contributions to fast track initiatives and to IGBP synthesis activities). (b) How can we improve integration across disciplines to provide a deeper understanding of Earth system processes and provide knowledge relevant for management responses?

Information for: strategic development.

(a) Activities

- IGAC is co-coordinator of an IGBP/SCOR Fast Track Initiative on Megacities in the coastal zone (see section 2), involving participation from SOLAS, IGAC and IMBER. This activity contributes to the IGBP Integration topic on Megacities.
- IGAC is lead coordinator of the IGBP Synthesis topic on Atmospheric Pollution and Climate.

4. Strategic Outlook

List (a) your goals and priorities for the upcoming 2 years, focusing on strategic issues and (b) major activities planned (workshops, conferences, etc.) with dates or approx. timeframe.

Information for: strategic development, reporting/fundraising & networking.

(a) Goals and Priorities:

- As noted above, 2010 was a transitional year for IGAC. We are now putting much of our focus on synthesis activities, both at the IGAC and IGBP levels, leading up to the end of Phase II and the IGBP OSC in 2012. Priorities in the next 1-2 years will include:
 - Publication in a peer-reviewed journal of the IGAC report on Bounding the Role of Black Carbon in Climate, in the first half of 2011.
 - Completion of the IGAC/WMO Megacities Assessment. Final report editing is an immediate priority for the new IGAC Executive Officer, Megan Melamed, who is working with the report lead author, Tong Zhu (IGAC co-chair). WMO has offered to print and distribute the report when it is complete.
 - IGAC has been leading the IGBP Synthesis activity on Air Pollution and Climate and plans to have the first workshop for AtPollClim in 2011 (see below). Carrying this activity forward will be a major focus of IGAC in 2011-2012.
 - A new activity is expected in the area of "Atmospheric Chemistry and Health", to try and bridge the gap between the atmospheric chemistry and epidemiological research communities. A first step will be a planned workshop later this year, with leadership from



both CACGP and IGAC.

- In 2010, the Global Emissions Inventory Analysis (GEIA), which originated under IGAC, then moved to AIMES ~2002, became a joint activity of IGAC/iLEAPS/SOLAS/AIMES. IGAC and GEIA have discussed the need to produce improved meta-data for existing emissions inventories, as well as to use local/regional emissions knowledge to improve international emissions databases. At the same time, a U.S.-based effort, "CEIRA" has started to provide improved meta-data and an improved user interface for existing emissions databases. CEIRA is looking for a "home" and there are discussions underway about how to coordinate the interests and activities of CEIRA, GEIA and IGAC (as well as iLEAPS, SOLAS and AIMES). We expect this to be a focus in 2011.
- The Atmospheric Chemistry and Climate ACC-MIP (Atmospheric Chemistry and Climate Model Intercomparison Project) and Hindcast modelling activities are now underway. Coordination of this effort, workshops to discuss results and plan next steps, and publication of the results are expected in 2011-2012.
- Planning of the first field experiment for ACPC will take place in 2011, the field campaign likely taking place in Brazil in 2012.
- We hope to leverage the newly formed IGAC Working Group in China and to formalize a similar group in north Africa in 2011-2012 to help build scientific capacity in these regions and increase international collaboration between scientists in this and other regions, especially in light of the growing importance of activities in these regions to climate and air quality.

(b) Workshops & activities:

- 13-15 April 2011, Toulouse, France, 1st workshop of the AC&C "Atmospheric Chemistry and Climate Model Intercomparison Project" (ACC-MIP). The goals of the workshop are to: (i) discuss the first model results from ACC-MIP runs and (ii) to plan next steps for the ACC-MIP analysis.
- May 2011: Invitational workshop of ~20 participants on Atmospheric Chemistry and Health, with joint CACGP/IGAC leadership, Boston, Massachusetts.
- 6-7 June 2011 3rd (and expected final) Air-Ice Chemical Interactions (AICI) workshop, Columbia University, New York, NY. This workshop will provide a forum to bring together new insights from AICI studies over the last 8 years. The expected product of this workshop is 2-3 review articles covering advances in the state of the science since the highly successful special issue in Atmospheric Chemistry and Physics that followed the 2006 AICI workshop in Grenoble.
- June/July (exact date TBD) first workshop for the Air Pollution and Climate Synthesis, likely in Europe
- 3-7 October 2011 IGAC SSC meeting and workshop on Dust Impacts on Central America, University of Puerto Rico (hosted and organized by IGAC SSC member Olga Mayol-Bracero)
- 12-15 September 2011, LOICZ Open Science Conference in Yantai, China. IGAC co-chair Tong Zhu will give an invited talk for the session "Megacities in the coastal zone: interactions with the Atmosphere". This is an outcome of the IGBP FTI on Megacities in coastal zones, which was carried out joint by SOLAS, IGAC and LOICZ.
- 17-21 September 2012, IGAC Open Science Conference, Beijing, China. (Lead local organizer: Tong Zhu, University of Beijing, IGAC co-chair). New to IGAC conferences, we are planning to include a workshop before the conference specifically aimed at young scientists (but open to anyone) with primers in specialty topics in atmospheric chemistry.

5. Contributions to international assessments

List your links and contributions to international assessments such as IPCC. List the names of authors involved in your project who are lead authors or review editors for AR5. See

http://www.ipcc.ch/meetings/session32/inf07_p32_ipcc_ar5_authors_review_editors.pdf

Information for: strategic development & reporting/fundraising.

- IGAC members on AR5 WGI report:
 - Maria Cristina Facchini (IGAC SSC member), Lead Author, Chapter 1
 - Yutaka Kondo (IGAC SSC member), Lead Author, Chapter 7
 - Ulrike Lohmann (former IGAC SSC member), Lead Author, Chapter 7
 - Philip Rasch (former IGAC co-chair), Lead Author, Chapter 7
 - Sandro Fuzzi (former IGAC co-chair), Reviewer, Chapter 7
 - Drew Shindell (lead on IGAC/SPARC AC&C Activity 4), Coordinating Lead Author, Chapter



8

- Jean-Francois Lamarque (lead on IGAC/SPARC AC&C Activity 4), Lead Author, Chapter 8
- Dorothy Koch (lead author on IGAC “Bounding BC” report), Lead Author, Chapter 8
- The IGAC report on Bounding the Role of Black Carbon in Climate is expected to constitute a direct contribution to AR5. Metrics being reported in the publication were determined based specifically on those used in the IPCC process, and terminology was intentionally used for consistency with IPCC assessments.
- Two of the IGAC/SPARC Atmospheric Chemistry and Climate initiative activities will contribute to AR5:
 1. The activity on future scenarios – being conducted in coordination with the climate model intercomparison project (C5MIP) as ACC-MIP – will produce timelines of future forcing by short-lived species (aerosol, ozone, methane) using emissions that have been coordinated with the RCPs for greenhouse gases. This coordinated modelling effort will allow for more a more robust forecast of the role of aerosols in a future climate and the uncertainties in those forecasts.
 2. The activity on hindcasts of aerosols, ozone and methane will test models’ ability to reproduce past climate changes and the role of short-lived species in these changes as well as provide insight into critical process that contribute to radiative forcing by these species.
- The IGAC/WMO Megacities Assessment report will itself constitute a significant international assessment report.

Continue to Section 2



6. Communication and Outreach

List networking activities and products (websites, newsletters, outreach products) for the scientific community and beyond (policymakers, the public). Please give details where end-users have been involved in the concept and production.

Information for: outreach, networking & reporting/fundraising

Examples:

- IGAC website : <http://www.igac.noaa.gov>
 - We are in the process of adding pages specifically aimed at the general public on the history of atmospheric chemistry research, specialty topics in atmospheric chemistry, and the use of satellites in atmospheric chemistry research.
- *IGAC* Activities Newsletter mailed to ~3,600 scientists and are available to download on our web page

7. Publications

List (for the period since your last annual report to IGBP): (a) the top 10 most important publications in the peer-reviewed literature as a result of the project and (b) the total number of peer-reviewed publications attributed to the project and listed in your database

Information for: reporting/fundraising & outreach.

(a) Select publications from the AMMA-AC and POLARCAT special issues

- de Villiers RA, Ancellet G, Pelon J, Quennehen B, Schwarzenboeck A, Gayet JF, and Law KS (2010) Airborne measurements of aerosol optical properties related to early spring transport of mid-latitude sources into the Arctic, *Atmos. Chem. Phys.*, 10, 5011-5030.
- Fischer JA, Jacob DJ, Purdy MT, Kopacz M, LeSager P, Carouge C, Holmes CD, Yantosca RM, Batchelor RL, Strong I, Diskin GS, Fuelberg HS, Holloway JS, Hyer EJ, McMillan WW, Warner J, Streets DG, Zhang Q, Wang Y, Wu S (2010) Source attribution and interannual variability of Arctic pollution in spring constrained by aircraft (ACRTAS, ARCPAC) and satellite (AIRS) observations of carbon monoxide, *Atmos. Chem. Phys.*, 10, 977-996.
- Gilman JB, Burkhardt JF, Lerner MB, Williams EJ, Kuster WC, Goldan PD, Murphy PC, Warneke C, Fowler C, Montzka SA, Miller SR, Miller L, Oltmans SJ, Ryerson TB, Cooper OR, Stohl A, and de Gouw JA (2010) Ozone variability and halogen oxidation within the Arctic and sub-Arctic springtime boundary layer, *Atmos. Chem. Phys.*, 10, 10223-10236.
- Hirdman D., Sodemann H, Eckhardt S, Burkhardt JF, Jefferson A, Mefford T, Quinn PK, Sharma S, Ström J, Stohl A (2010) Source identification of short-lived air pollutants in the Arctic using statistical analysis of measurement data and particle dispersion model output, *Atmos. Chem. Phys.*, 10, 669-693.
- Hirdman D, Burkhardt JF, Sodemann H, Eckhardt S, Jefferson A, Quinn PK, Sharma S, Ström J, Stohl A (2010) Long-term trends of black carbon and sulphate aerosol in the Arctic: changes in atmospheric transport and source region emissions, *Atmos. Chem. Phys.*, 10, 9351-9368.
- Barret B, Williams JE, Bouarar I, Yang X, Josse B, Law K, Pham M, Le Flochmoën E, Liousse C, Peuch VH, Carver GD, Pyle JA, Sauvage B, van Velthoven P, Schlager H, Mari C, Cammas J-P (2010) Impact of West African Monsoon convective transport and lightning NO_x production upon the upper tropospheric composition: a multi-model study, *Atmos. Chem. Phys.*, 10, 5719-5738.
- Marticorena B, Chatenet B, Rajot JL, Traoré S, Coulibaly M, Diallo A, Koné I, Maman A, NDiaye T, and

- Zakou A (2010) Temporal variability of mineral dust concentrations over West Africa: analyses of a pluriannual monitoring from the AMMA Sahelian Dust Transect, *Atmos. Chem. Phys.*, 10, 8899-8915.
- Matsuki A, Quennehen B, Schwarzenboeck A, Crumeyrolle S, Venzac H, Laj P, Gomes L (2010) Temporal and vertical variations of aerosol physical and chemical properties over West Africa: AMMA aircraft campaign in summer 2006, *Atmos. Chem. Phys.*, 10, 8437-8451.
- Reeves CE, Formenti P, Afif C, Ancellet G., Attié J-L, Bechara J, Borbon A, Cairo F, Coe H, Crumeyrolle S, Fierli F, Flamant C, Gomes L, Hamburger T, Jambert C, Law KS, Mari C, Jones RL, Matsuki A, Mead MI, Methven J, Mills JP, Minikin A, Murphy JG, Nielsen JK, Oram DE, Parker DJ, Richter A, Schlager H, Schwarzenboeck A, Thouret V (2010) Chemical and aerosol characterisation of the troposphere over West Africa during the monsoon period as part of AMMA, *Atmos. Chem. Phys.*, 10, 7575-7601.
- Stone D, Evans MJ, Commane R, Ingham T, Floquet CFA, McQuaid JB, Brookes DM, Monks PS, Purvis R, Hamilton JF, Hopkins J, Lee J, Lewis AC, Stewart D, Murphy JG, Mills G, Oram D, Reeves CE, Heard DE (2010) HOx observations over West Africa during AMMA: impact of isoprene and NOx, *Atmos. Chem. Phys.*, 10, 9415-9429.

POLARCAT Special Issue: http://www.atmos-chem-phys.net/special_issue182.html
 AMMA Special Issue: http://www.atmos-chem-phys.net/special_issue125.html

8. Training and capacity building

List your capacity building activities eg. Summer schools, Young Scientist Workshops, lecture series, training & education, etc.

Information for: reporting/fundraising & networking.

- Our biennial conferences include a significant young scientist program and funds specifically to bring young scientists to the conference. In 2012, we will be adding a pre-conference series of primers in special topics of atmospheric chemistry, aimed at young scientists.
- Efforts to establish IGAC Working Groups in China and Africa will help build scientific capacity there.

9. Project administration and management

Describe the structure of the IPO, Node/foci offices and sponsors. Note any resource concerns.

Information for: reporting/fundraising & networking.

- In 2010, the Seattle IPO continued to act as primary IGAC project office, with two employees (Sarah Doherty, Executive Officer and Collen Marquist, Programmatic Assistant). Sarah worked 25% time on research, 75% IGAC; Collen worked 30% time for IGAC. In February, 2011 Sarah stepped down as IGAC Executive Officer and was replaced by Megan Melamed, who is working full time as Executive Officer.
- The IGAC Seattle office is funded at ~\$270kUSD/year under a grant split equally between the U.S. NSF, NOAA and NASA agencies. Funding under the current grant continues through June, 2012. At the end of this funding cycle we plan to move the IGAC Core Project Office to CIRES (a joint institute of the Univ. of Colorado and NOAA) in Boulder, Colorado, pending establishment of the appropriate agreements with CIRES and continuation of funding by NASA, NOAA and NSF (*Contact: Megan Melamed*)
- The European ACCENT-Plus project (the follow-on to the original ACCENT project, which ended in 2009) is providing ~18kEuro/year for travel support to SSC meeting and workshops. These funds are administered through the ACCENT office in Bologna, Italy. (*Contact: Paul Monks, IGAC co-chair*)
- Academia Sinica continues to support IGAC by printing and mailing the *IGACactivities* newsletter and covering the associated costs. While this support was originally anticipated to end in 2008, Dr. Liu has graciously extended this support at least through 2011 (*Contact: Shaw Liu, former IGAC co-chair*)

10. Links with the observations community

List: (a) links/activities with the observation community (e.g., meetings attended, activities, data you are



providing), (b) the observation and data products you are using from e.g. ESA, NASA, etc., and
(c) additional needs.

Information for: reporting/fundraising, networking and strategic development.

- Observations such a key component of IGAC activities such as AMMA-AC, POLARCAT, AICI, DEBITS, and Megacities-Asia that to enumerate them here would be unreasonable.

11. Other comments

06-02-2011

Compiled by Sarah Doherty

