

Minutes of the 2016 meeting of SCAR-SCAGI

Sunday 21 August 2016

The SCAGI meeting was held in association with the SCAR Open Science Conference

<http://scar2016.com/index.php>

Location of the meeting: Renaissance Hotel, Kuala Lumpur.

Attendees:

Adrian Fox (UK)	British Antarctic Survey Co-Chair SCAGI	A.Fox@bas.ac.uk
Jean-Yves Pirlot (Belgium)	Belgian National Geographic Institute Co-Chair SCAGI	Jean-Yves.Pirlot@ngi.be
Carlo Baroni (Italy)	University of Pisa	Carlo.Baroni@unipi.it
Élisabeth Calvarin (France)	Terres Australes et Antarctiques Françaises	E-Calvarin@wanadoo.fr
Koichiro Doi (Japan)	National Institute for Polar Research	Doi@nipr.ac.jp
Mark Dyer (NZ)	Land Information New Zealand New Zealand Geographic Board	MarkDyer@linz.govt.nz
Peter Fretwell (UK)	British Antarctic Survey	ptf@bas.ac.uk
Susan File (Canada)	Polar Knowledge Canada	Susan.File@polar.gc.ca
Antonie Haas (Germany)	Alfred Wegener Institute	Antonie.Haas@awi.de
Brad Herried (USA)	US Polar Geospatial Center	Herri174@umn.edu
Jaakko Mäkinen (Finland)	Geospatial Research Institute Finland	Jaakko.Makinen@nls.fi
Yngve Melvaer (Norway)	Norwegian Polar Institute	Yngve.Melvaer@npolar.no
Paul Morin (USA)	US Polar Geospatial Center	lpaul@umn.edu

Attending part time:

Jenny Baeseman	SCAR Executive Director	jbaeseman@gmail.com
Rodolfo Andrés Sánchez	Dirección General de Asuntos Antárticos Cancillería Argentina (now director of the Argentine Antarctic Institute IAA)	zrf@mrecic.gov.ar
Robert Ward (Monaco)	International Hydrographic Organization	pres@iho.int

Attending by Skype:

Ursula Harris (Australia)	Australian Antarctic Division	Ursula.Harris@aad.gov.au
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1) Welcome from Jean-Yves Pirlot and Adrian Fox, co-chairs SCAGI.

1.1 Welcomes and opening remarks: Adrian Fox and Jean-Yves Pirlot welcomed the attendees to the meeting and noted the good attendance and that this was the first meeting in Asia since Shanghai in 2002.

Susan File from Canada was welcomed as a new representative. In future the official delegate for Canada will be Peter Pulsifer, but he was unable to attend this SCAGI meeting.

Jennifer Baeseman and Rodolfo Andrés Sánchez took also part in major parts of the meeting and were both warmly welcomed by SCAGI.

All the members introduced themselves and their affiliations.

The delegates acknowledged that there is no representation of the Russian Federation in SCAGI, although we have previously had some encouraging contacts with Igor Vasiliev, Head of the Russian Mapping and Cadastral Authority (Federal Service for State Registration, Cadastre and Cartography).

AI: Jenny Baeseman will try to liaise with the Russian Polar authorities to identify a SCAGI delegate/point of contact.

1.2: IHO presentation: Captain Robert Ward (President, International Hydrographic Organisation) gave an interesting and informative presentation on behalf of IHO titled *'The state of Hydrographic knowledge in Antarctica.'* This will be included with the National Reports in the meeting papers on the SCAGI website. The presentation summarised the current status of hydrographic information for the Southern Ocean and noted that this remains sparse in comparison with other areas of the globe, and indeed the Moon and Mars. Less than 15% of the ocean floor area has been measured directly and satellite gravity measurements suggest that there may be more than 100,000 sea mounts with more than 1000 m of relief that are still uncharted. Captain Ward made a plea for national operator vessels to act as ships of opportunity for collection of bathymetric data and emphasised that all data is useful, including for confirming existing data in relatively well-measured areas. He introduced a low-cost (250 euro) data logger that can be easily installed on ships to routinely collect bathymetric data and an easy to use upload portal to an IHO global database and GEBCO.

Peter Fretwell remarked that the obvious connexion between SCAGI and IHO is the coastline and that the Antarctic coastline is very dynamic and that this has of course implications for navigation.

Adrian Fox suggested that IHO establish a structural link with COMNAP to ensure that swath bathymetry data being collected by National Programme ships is made available to the Hydrographic charting community.

2) Review of minutes of previous meetings, Brussels, 2015 and Auckland 2014

2.1 Progress against actions from last meetings: *(Please see updated Action Grid at the end)*

After review of this section the attendees made no additional comments about the Action Items (AI). These grids will be updated following discussion at the meeting (at end of this paper).

3) National reports

National reports are an important part of the SCAGI meeting – they are an opportunity to inform delegates from other organisations about current and planned activities, which can highlight opportunities for collaboration and sharing of resources.

National reports given by Powerpoint or with written documents, will be included in the SCAGI website: <http://www.scar.org/data-products/scagi>

3.1 National reports were presented by:

Belgium (Jean-Yves Pirlot); **Canada** (Susan File for Peter Pulsifer); **France** (Élisabeth Calvarin); Finland (Jaakko Mäkinen); **Germany** (Antonie Haas); **Italy** (Carlo Baroni); **Japan** (Koichiro Doi); **New Zealand** (Mark Dyer); **Norway** (Yngve Melvaer), **UK** (Adrian Fox); **USA** (Paul Morin). Additionally Ursula Harris reported for Australia by Skype.

Written reports by delegates unable to attend the SCAGI meeting were presented *in absentia* for **Bulgaria** and **China**.

The Chairs thanked the presenting delegates for the interesting and informative reports.

3.2 Matters arising from National Reports:

Élisabeth Calvarin (France) reported that there have been major changes in staffing at TAAF. This has slowed down the processes in the last year.

She explained the place naming process in France, which involves the Toponymic Commission, the Prefect (for TAAF), the Mapping Agency IGN and Hydrographic and Oceanographic Survey SHOM.

She highlighted that France has a cautious approach and avoids creating too many new names. TAAF asks other countries to endorse their name proposals, recently *Station Concordia* and *Point Barnola*.

Rodolfo Andrés Sánchez (Argentina) informed the meeting that Argentina has re-organised activity in Antarctica, through stronger linkages between the National Hydrographic Service, the National Mapping Agency, the Argentine Antarctic Institute and their Ministry for Foreign Affairs. This will include a renewed involvement in SCAGI.

One intention is to complete the descriptions of place names in the CGA.

The co-Chairs welcomed the update from Argentina and the intention for a renewed contribution to the work of SCAGI.

4) SCAGI products: Progress reports, future plans and discussion about SCAGI products:

4.1 Composite Gazetteer of Antarctica (Carlo Baroni).

4.1.1: Summary of CGA Activity: (Please see Italian National Report on SCAGI website)

At 10 June 2015, the number of records (place names) in the CGA was 37,320, referring to 19,235 recognized different features. At 10 July 2016, the number of records in the CGA was 37,486, referring to 19,401 recognized different features – i.e. 166 new names for 166 new features.

The new names comprise 85 names submitted by China and 82 new names from Bulgaria. In addition, material from China resulted in cancellation of one name (hence the increase of 166 in the gazetteer) and modifications to a further 359 existing names.

New Zealand has recently completed a review of its place names which resulted in a list of 1258 names for the CGA, very many of which align the NZ gazetteer entries in the with existing names. Checking of this large number of names is in progress, in liaison with NZ Geographic Board.

The technical contact for new entries is Mrs Jacqueline Muller who liaises with Ursula Harris at Australian Antarctic Data Centre for the web-gazetteer content.

Jacqueline Muller (jacqueline.muller@unisi.it)

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4.1.2: Discussion of wider issues about Antarctic place names, including guidelines for international place naming in Antarctica:

There was a general agreement about the fact that we should insist on the unique ID per Antarctic Feature. For already established names, it will be difficult to have one single place name per geographic feature but for the future we should try to build on the common understanding of our task that resulted from the meeting.

As asked by Carlo Baroni and Mark Dyer we should have a set of principles enabling us to harmonize place names as well as the place naming process for the future.

Ursula Harris stated that the Australian Antarctic Division has reorganised the Australian Place-names Committee, which was originally founded in 1954. With new terms of reference from 2016. Mark Dyer (NZ) and other members of the meeting were very supportive.

The SCAGI group agreed to create a Working Group to develop a set of advisory principles and guidelines to for Antarctic place-naming. The WG will chaired by Jean-Yves Pirlot. The first steps will be to define a road map / strategy of issues to prioritize - ideas in this field are welcome, and to collate descriptions of current National Committee place-naming processes and underlying principles.

SCAR Bulletin 92 (1989) which sets out Terms of reference for the WG on Geodesy and Cartography (forerunner of SCAGI) does not mention place names. However some terms of reference must exist at the CGA level.

AI: Delegates who have interest in this topic are invited to confirm their participation to this WG.

AI: Delegates who have knowledge of national Antarctic naming procedures to send their principles, guidelines and terms of reference for place naming to Jean-Yves Pirlot.

AI: Adrian Fox to ask SCAR office for any information on ToRs for SCAR CGA or material about place-names from the SCAR WG on Geodesy and Cartography.

The discussions amongst the participants showed that for now we should focus on the future but that when this is solved we also should also seek to address legacy issues (such as different coordinates for the same feature).

Carlo Baroni mentioned his interest in developing a program of international exchange of information and experience for students to be involved in checking descriptions of names, precise locations and coordinates as well as to develop activity for supporting the Scar Map Catalogue.

4.1.3. Demonstration of US PGC online tool for reviewing locations of place names

Brad Herried and Paul Morin demonstrated a very useful tool developed for ACAN to underpin approval of new names and corrections to positioning of existing names. It enables Naming Committees or Board members to review names proposals in the context of Very High Resolution satellite imagery without the need for Geospatial skills or software. It can also be used to gather the required metadata during the place naming process.

It's obvious that if all of us could use a similar tool, it would streamline the process of reviewing correcting and harmonizing place names and be more effective than checking names against the lower resolution and less accurate LIMA mosaic.

PGC is willing to seek to develop the US tool towards a SCAGI – SCAR tool and the present delegates unanimously supported this. It would be good to be able to introduce the new tool during the 2017 inter-sessional meeting. However the main issue will be to see how PGC can allow access to the underlying VHR commercial data - hopefully this will be sorted out soon.

4.2 Antarctic Digital Database *(Peter Fretwell)*

4.2.1 Summary of ADD activity *(Please see ADD report on SCAGI website)*

BAS remains committed to developing and maintaining the ADD.

New data added during 2015 includes updates to the Antarctic Peninsula region ice shelf coastline, coastlines of the South Orkney Islands and South Sandwich Islands (not Antarctica but included for Southern Ocean context).

New data in 2016 includes a completely new rock outcrop dataset extracted by image analysis from Landsat 8 images. This is included for download alongside the existing ADD rock outcrop layer but is not yet implemented in the web viewer.

Additionally, there are updated ice shelf fronts for East Antarctica from Sentinel 1 satellite radar data.

Further data available but not yet included are a highly detailed Antarctic Peninsula coastline dataset from US PGC, blue ice data from University of Wuhan, China and a new composite regional-scale DEM for the Antarctic Peninsula and Coats Land region developed by BAS.

The web-interface has been updated to give a simpler, cleaner and more modern look. The login requirement has been removed – all the data is open and freely available. The download facility has been improved and now runs through a RAMADDA data repository. The ADD runs on upgraded and load balanced servers at BAS so should now be faster and more resilient.

The ADD has provided over 10,000 data downloads since upgrade of the web interface and download facility in January 2016.

4.2.2: Discussion of wider issues:

Acceptance of new datasets into the ADD: The original vision for the ADD was as a coherent, merged dataset of the best available mapping from national mapping agencies active in Antarctica. Implicit in this was that the data in the ADD would already have been subject to the quality assurance processes of the national mapping agency that produced the geospatial data. In recent years there have been fewer map/datasets produced by such agencies and made available to the ADD. At the same time a number of continent-wide, datasets based on automated extraction of topographic data from remote-sensing sources have become available. Examples include the grounding line, ice feature catchments, coastal change and bed DEM datasets currently included in the ADD.

The ADD team expect that this trend towards data derived from science activity rather than National Mapping Agencies is likely to continue and that the ADD needs to have a policy on inclusion of such new regional datasets to ensure data quality and access to information about the source data, methods used and accuracy/limitations. With this in mind, Adrian Fox and Peter Fretwell proposed that we should apply a policy of requiring new regional scale datasets to be backed up by a published, peer reviewed paper in a suitable international journal. This would apply rigour to acceptance of new data by exposing the data and methods to international peer-review and would allow linkage to an explanation of the sources, methods and accuracy of the data through the metadata.

The meeting attendees agreed to this policy for the ADD. The remote sensing based datasets already included in the ADD and listed above already meet this criterion.

Quantartica: The SCAR Quantartica product has launched a call for theme editors to be in charge of accepting the inclusion of thematic datasets into the GIS. SCAGI and ADD already have a role within Quantartica through provision of the underlying topographic base data for the GIS through the

ADD. Any SCAGI members with expertise in specific thematic areas should consider becoming involved with the Quantartica project.

4.3 Map Catalogue: *(Ursula Harris) Please see report on SCAGI website*

This report was planned to be read in absentia of its author, but very fortunately, Ursula Harris was able to connect virtually via Skype. The co-Chairs thanked Ursula for her contribution and persistence to follow the full day meeting from afar, despite time zone issues.

The SCAR map catalogue is hosted by Australian Antarctic Division. It aims to be the central map repository for SCAR and provide a complete catalogue of published Antarctic maps together with download links from the map producer, or for hard-copy maps, information on how to obtain the map.

In the last year 6 new maps were included in the Map Catalogue, but 35 are of Australian origin. This indicates a lack of engagement with the SCAR Map Catalogue by SCAGI organisations and needs to be improved if it is to retain its relevance as reference for published international maps.

Several organisations representatives pledged to update their content in the MapCat!

Ursula Harris explained that all that is required is to fill in a spreadsheet (available from Ursula Harris Ursula.Harris@aad.gov.au) with the required metadata and the Australian Antarctic Division will handle the rest.

AI: SCAGI representatives to review their organisations' content in the MapCat and update as appropriate. Completed spreadsheets to be sent to Ursula Harris. Any duplicate map entries that are noticed are to be notified to Ursula Harris.

The IHO charts can be referenced too, but they will not be hosted in the SCAR Map Catalogue but links can be added.

AI: Robert Ward and Ursula Harris to liaise.

AI: Jean-Yves Pirlot to amend the wording of the definition of the SCAR Map Catalogue on the SCAGI website, as suggested by Ursula Harris.

The group then discussed the opportunity of creating a SCAR Aerial Photography Catalogue and agreed that this would be a very useful initiative. It was noted that this is a good time to initiate this because the USGS have recently completed scanning and web-access for several of the key aerial photography collections.

AI: Adrian Fox to take this forward in liaison with other interested parties who hold aerial photography collections.

4.4 Air Operations Planning maps (Adrian Fox)

4.4.1 Summary of progress.

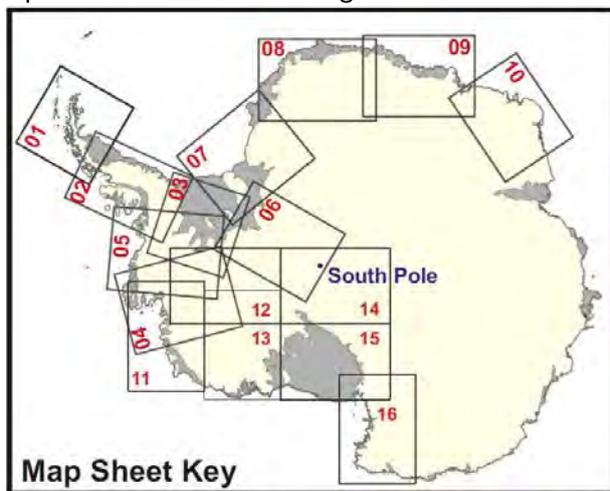
There was a very useful workshop for the Air Operations Planning maps Series at the end of the SCAGI inter-sessional meeting in Brussels, in June 2015. This was attended by representatives from the organisations compiling the maps (British Antarctic Survey, IGN Belgium, Norwegian Polar Institute and US Polar Geospatial Center) and resulted in a detailed specification for the maps that all the contributor organisations agreed to adhere to.

BAS completed 7 sheets covering the area from Thwaites Glacier through the Antarctic Peninsula region to 20 W. These were deployed in Antarctica in BAS aircraft and shared with other organisations including Kenn Borek Airways, UK Royal Air Force and Chilean Air Force

Norway completed the sheet covering western Dronning Maud Land and Belgium achieved a draft version of a map covering eastern Dronning Maud Land. Together these 9 sheets covered the coastline and mountains in the region between 115 W and 40 E.

4.4.2 Aims for 2016-17 Antarctic season:

Work to increase the coverage of the maps has continued, now with US-PGC active in the project. The specification has been further refined following feedback from users after the 2015-16 season and in response that issues that have become apparent as more of the continent has been covered. The objective for 2016-17 Antarctic Operations season is to achieve completion of the currently planned sheets in time for use in Antarctica. This will comprise 7 sheets from BAS, 1 sheet from Norway, 2 sheets from Belgium and 6 sheets from USA, together covering the area from 155 E to 65E. In addition there will be a 1:10 M scale overview map showing the distances between Air Operations facilities and magnetic declination.



Map coverage in 16 sheets planned for 2016.

The deliverables will be a) PDF format maps and b) Geotiff data that can be used with Avenza PDF maps software (for example) to implement the Air Ops Planning Maps on tablet devices. The maps are to be freely available through the download facilities of the creator institutions.

4.4.3. Future aims: The overall aim is to achieve complete coverage of the coastline and mountain areas for the entire continent in the 1:1M scale series. Which organisation(s) will cover the unmapped area is for further discussion.

AI: Coordinate a communications campaign when the Air Operations Planning Maps series is considered finalized.

5) Website

The SCAGI website is up-to-date with minutes and papers from previous meetings and with basic information and links about the SCAGI products. The wider SCAR website is in the process of a major review and redesign. The SCAGI website will be improved when the new SCAR website is operational. SCAGI is responsible for SCAR products that are highly valued by the Antarctic community and are clearly well suited to showcasing on interesting and visually attractive web pages. SCAGI should really have the exemplar pages on the SCAR website and this should be a priority, when progress with the SCAR website allows.

AI: Jean-Yves and Adrian to update and improve the SCAGI website when the new SCAR website is ready.

6) Horizon scan – if not already covered in the previous discussions

6.1 New sources of elevation data for Antarctica – US DEM from VHR imagery

Paul Morin had already given a detailed update on progress with the US DEM of Antarctica from high-res satellite imagery and highlighted the requirement for access to geodetic survey details as check data.

6.2 New sources of elevation data for Antarctica – Tandem-X satellite radar DEM

The “WorldDEM” Tandem-X DEM ([TanDEM-X](#)) of the Earth including Antarctica has been completed – accuracy exceeds the expected 10 m and is at the level of a few metres. Airbus/DLR are claiming 2m (relative) and 4m (absolute) vertical accuracy in a 12m x 12m raster. The data is derived from X-band radar sensors mounted on two TerraSAR-X satellites orbiting in tandem at about 150 m spacing. For mountain areas including Antarctica, data from multiple passes have been merged to minimise data gaps and blunders.

DLR (Germany) provides the data for free for scientific projects. Proposers need to verify the scientific quality of their project by submitting a proposal to DLR. All information about this process is available on the project website <https://tandemx-science.dlr.de>. Commercial users need to contact the project partner Airbus Defence and Space where the elevation model can be purchased. It is not clear at this point where Antarctic topographic mapping projects might fit into this scheme, but the data clearly have potential for Antarctic work. Requests for data are at present dealt with by Airbus on an individual, user by user basis. We will seek to discuss any experiences with the new product at the next SCAR meeting.

6.3 Un-manned aerial vehicles (UAVs): Adrian Fox highlighted the growing use of UAVs/drones for geospatial data capture and observed that this was already emerging as a theme in National Reports. The participants to the meeting recognized the growing UAV use and see the high potential for future applications and that this could become a topic for further discussions within SCAGI. This is a new and rapidly evolving field with many potential applications for geospatial data capture in Antarctica, but also challenges from the polar environment. An arena where different groups could share their experiences of working with UAVs in the polar regions would be very valuable.

6.4 High resolution satellite imagery for wildlife census and studies: Peter Fretwell highlighted the importance of new sensors with both higher spatial and spectral resolution, such as WorldView 3 and Sentinel 2 for wildlife surveys. This is an area that is being addressed by a new SCAR working group on remote sensing for wildlife which is having a kick-off meeting also in KL in association with the SCAR Open Science meeting and a meeting in Leuven, Belgium in June 2017. There are interesting collaboration in this area between ecologists and geospatial data specialists.

7) Election of SCAGI Officers

Adrian Fox and Jean-Yves Pirlot have come to the end of their 4-year period as Co-Chief Officers. Job Descriptions for the CO and Deputy CO roles had been circulated with the papers prior to the meeting and SCAGI delegates invited to consider whether they wish to stand as SCAGI Chief Officer or Deputy CO, or as co-COs. There were no expressions of interest and so the participants at the meeting appointed Adrian and Jean-Yves for an additional term of four years.

8) AOB (Any Other Business)

8.1 Virtual meetings: There is a wider initiative in SCAR to promote greater use of virtual meeting facilities to improve the efficiency of the SCAR groups between live meetings (Jenny Baeseman).

SCAGI will try to move forward with this with the aim to meet quarterly between the sessional and intersessional meetings.

8.2 Pioneering women recognised in Antarctic Place-names: There is an interesting initiative to map place-names in Antarctica that recognise the contribution of pioneering women to Antarctic affairs. SCAGI members are invited to contribute to this effort of making this map by identifying place names that fit this criterion (this is not easy to do because place-name gazetteers are not structured to search by gender).

9) Date and location of next meeting: The next SCAGI meeting will be held on Monday and Tuesday 12 and 13 June 2017, at Alfred Wegener Institute, Bremerhaven, Germany. Hosted by Antonie Haas.

10. Action Grid

Actions from 2015 meeting in Brussels, June 2015.

Number	Action	Owner	Due by	Status
1	Create contact between TAAF and Ursula Harris about how to include the scanned French maps in the SCAR Map Catalogue.	AJF/JYP		Closed
2	Talk to Carlo Baroni about how to standardise identification of relic features in the CGA.	AJF/JYP		Closed – liaison between Carlo Baroni and Ursula Harris
3	Establish liaison with UNGEGN	AJF/JYP		Closed. Established that Élisabeth Calvarin, Mark Dyer and Catherine Cheetham (UKA APC) will be attending UNGEGN and can report back for SCAGI.
4	BAS to pass details of UK place names with French relevance to TAAF	AJF		Closed (SHOM Rock and Barnola Glacier)
5	Collate information from Antarctic place-naming processes from bodies that have published processes/guidelines and publish on the SCAGI	AJF/JYP		To be included in the work of the WG on place naming guidelines initiated at the

	website.			2016 meeting
6	Resolve inconsistencies in spelling of Cobalcescu Island –adoption of internationally agreed Romanization.	AJF/ Carlo Baroni		Closed

New Actions from 2016 meeting in Kuala Lumpur, August 2016.

Number	Action	Owner	Due by	Status
1	Liaise with the Russian Polar authorities to identify a SCAGI delegate/point of contact.	Jenny Baeseman (SCAR)		
2	Delegates who have interest in joining the WG on place-names guidance to contact Jean-Yves Pirlot	ALL	Before June 2017 meeting	In progress
3	Delegates who have knowledge of national Antarctic naming procedures to send their principles, guidelines and terms of reference for place naming to Jean-Yves Pirlot.	ALL	Before June 2017 meeting	To be included in the work of the WG on place naming guidelines initiated at the 2016 meeting
4	Research information on ToRs for SCAR CGA or material about place-names from the SCAR WG on Geodesy and Cartography	AJF/AH	Before June 2017 meeting	Closed
5	SCAGI representatives to review their organisations' content in the MapCat and update as appropriate. Completed spreadsheets to be sent to Ursula Harris. Any duplicate map entries that are noticed are to be notified to Ursula Harris.	ALL	As practical	Active
6	Liaison over inclusion of hydrographic charts in the SCAR MapCat	Robert Ward and Ursula Harris		
7	Amend text on SCAGI website for MapCat as advised by Ursula Harris	JYP	When new SCAR website online	Active
8	Discuss creation of a catalogue of Antarctic aerial photography with organisations that hold	AJF	Before June 2017 meeting	

	material.			
9	Coordinate a communications campaign when the Air Operations Planning Maps series is considered finalized.	AJF and others	Summer 2017 for 2017-18 Air Operations season.	For discussion at 2017 meeting
10	Update and improve the SCAGI website.	JYP/AJF and ALL	When the new SCAR website is ready	

Adrian Fox and Jean-Yves Pirlot

4 May 2017