Report of the 13th Session of the Climate and Cryosphere Project (CliC) Scientific Steering Group (SSG)

17-18 February 2017, Victoria University of Wellington, New Zealand

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Introduction

The Scientific Steering Group of the World Climate Research Programme (WCRP)'s Climate and Cryosphere (CliC) Project met for its 13th session on February 17-18, 2017. The meeting was hosted at the Victoria University of Wellington (VUW), and was co-sponsored by WCRP, the CliC IPO, the Norwegian Polar Institute (NPI), and VUW. The CliC SSG-13 took place in conjunction with the IGS/IACS/CliC International Symposium on the Cryosphere in a Changing Climate held at VUW from February 13-17, 2017.

Twenty-seven participants from thirteen different countries attended the meeting (twenty-five in person; two remotely). The meeting was chaired by CliC Co-Chairs Gerhard Krinner and James Renwick.

Summary of Presentations, Discussions, and Action Items

Day 1, February 17, 2017

CliC Overview 2017

Overview of CliC Activities and International Project Office (IPO)

CliC Director Lawrence Hislop provided an overview of the IPO achievements for 2016 and highlighted some key metrics regarding on-line meeting use (GoToMeeting), social media results (>2000 Twitter followers), support for early career scientists and highlights of a productive workshop schedule throughout the year. The CliC IPO presented a new format for the 2016 Annual Report which received positive feedback from the SSG members. The 2016 Report is available at: http://bit.ly/2lwHbar . Looking ahead, fundraising was identified as a high priority for 2017 and a renewed push to develop funding proposals with partners will be prioritised.

The week preceding SSG-13, CliC co-organized the IGS/IACS/CliC International Symposium on The Cryosphere in a Changing Climate, which took place from Feb 13-17. The success of this event has strengthened the links with the two co-partners and future joint activities were discussed together throughout the week.

In 2016, the CliC community was closely involved in the Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report (AR6) preparatory process, including:

- Compiling input for a questionnaire on the Working Group I (WGI) contribution to the IPCC AR6;
- Submission (through WCRP) of experts to participate in the Scoping Meeting for the IPCC AR6;
- Submission (through WCRP) of experts to participate in the Scoping Meeting for the IPCC AR6 Special Report on Cryosphere and Oceans.

Actions and follow-up:

- The current CliC representative on the WCRP Data Advisory Council (WDAC), Walt Meier, is ending his term in 2017 and a new representative should be nominated as soon as possible. L. Hislop to help identify best replacement for this position. (L Hislop; ASAP)
- Membership of four SSG members and one Co-Chair are expiring at the end of 2017. CliC will try to keep its balanced geographical representation and scientific expertise while also striving to improve the gender balance in the SSG. (IPO with co-chairs; ASAP)
- Evaluation of CliC projects (benchmarking) and their impacts should be improved.(L Hislop; by next SSG)
- The CliC Director will prioritize fundraising in 2017 with the help of the leadership. (L Hislop; ongoing)

Overview from the WCRP Joint Planning Staff and Joint Scientific Committee (JSC)

Mike Sparrow from the WCRP Joint Planning Staff gave an overview of WCRP and reported on action items relevant for CliC from the 37th Session of the WCRP Joint Scientific Committee (JSC-37) held in April 2016 in Geneva.

CliC-related action items from the JSC included:

- CliC should clarify how to include Early Career Scientists generally in their activities (leadership, membership, planning etc.)
- CliC to work closely with JPS on joint outreach: newsletters and media outreach
- CliC should promote Antarctic CORDEX and clarify any issues delaying progress. Result: Through a CliC led on-line leadership call in 2016, a chair was nominated for Antarctic CORDEX (Andrew Orr).
- Obs4MIPs to consider inclusion of regional data sets, such as polar (WDAC/obs4MIPs)

Grand Challenge (GC) related action items from the JSC included:

- To develop overall monitoring and evaluation guidelines for the Grand Challenges.
- Explore labelling/branding of GCs in connection with Core Projects.
- Initiate a review process of GCs with 2020 as a future date to decide on continuation of these activities.
- Consider developing a simple matrix to measure progress of GCs.

The 38th Session of the JSC will take place in Paris during the first week of April 2017 and will focus on a review of WCRP by the co-sponsors: WMO, ISCU, IOC-UNESCO. WCRP is developing a summary document 'WCRP Ahead' as a basis for the WCRP review and Strategic Plan.

WCRP is in the process of scoping its regional activities which includes the following main points:

- A renewed focus on facilitating the creation of reliable climate information for regions.
- The need for a "go-to place" to coordinate and support regional initiatives (there may be an open call for supporting a coordinator for WCRP regional activities).
- The need to acknowledge lessons learnt, build on past and ongoing regional activities within Core Projects, Working Groups, and other activities (cataloguing WCRP regional activities).

Mike Sparrow reported that the WCRP budget has been reduced for 2017 due to a significant decrease in funds from its co-sponsors. Project funding of CHF 43000,- was allocated to CliC for 2017. The need for careful prioritization of projects over the forthcoming period was emphasized.

Actions and follow-up:

- WCRP JPS will draft a letter to the WMO Management which will be reviewed and signed by the by Core Projects, identifying the future implications of reduced funding. (WCRP JPS; ASAP)
- WCRP JPS was invited to present a detailed list of the national contributions to WCRP the following day, which was done.

Overview from the CliC Co-Chairs

Co-Chair Gerhard Krinner reported on the 2016 CliC science highlights and main achievements of Targeted Activities, projects, and the Melting Ice & Global Consequences Grand Challenge. He explained that the first goal of this GC was to create links with the modeling community, which has resulted in CliC supported Coupled Model Intercomparison Projects (MIPs) being included in the GC. It was noted that CliC has been successful at promoting and funding the cryosphere related CMIP modelling groups.

G. Krinner emphasized the need for constant vigilance to avoid the potential duplication of activities, especially within the WCRP community. Given the current budget situation, CliC should be cautious about the creation of new activities as well as prevent the fossilization of its current projects. The yearly review of the CliC Science Plan will help to streamline such priorities. The CliC Co-Chair also welcomed feedback on the way the CliC leadership and SSG are currently functioning.

A detailed reporting of all of the CliC Targeted Activities and Groups is available in the 2016 Annual Report. G. Krinner thanked the IPO and all of the project leads who contributed to the report.

CliC Science Plan and New Initiatives 2017

CliC Co-chair James Renwick reported on the 2016-2020 CliC Science Plan, which describes the overarching research needs and themes that guide CliC activities. The Science Plan is meant to be a living document and should be critically-reviewed and updated at each SSG meeting. J. Renwick asked the group if 1) the overarching research needs are still relevant;

2) the four science themes (Terrestrial Cryosphere, Marine Cryosphere, Ice Sheets, Glaciers and Sea Level, Global and Regional Prediction & Projection of the Cryosphere) still reflect CliC priorities; and 3) CliC's current and proposed activities are consistent with the research questions. The group discussed the four science headlines and concluded that a restructuring and rewording was needed.

Actions and follow up:

- Suggestions on the Science Plan were welcomed and a more detailed discussion on was planned for the 2nd day of the meeting. (all; ASAP)
- Schedule a Leadership Call with GC Chair G. Flato on the GC Implementation Plan which needs to be reviewed. (IPO; April 2017)

New Initiatives

CLIVAR Co-Chair Detlef Stammer presented a proposal to establish a CLIVAR/CliC Northern Oceans Region Panel (NORP) to help coordinate efforts to monitor the northern/Arctic coupled oceans systems and to support prediction of the evolution of the emerging new Arctic climate. NORP is expected to play a central role in coordinating, monitoring, and evaluating the progress of such activities during and beyond YOPP and would follow the organizational structure of the joint CLIVAR/CliC/SCAR Southern Ocean Region Panel (SORP). The CLIVAR SSG has already approved NORP.

The group discussed the relevance of the panel and its name. The NORP geographical boundaries should be well defined and agreed so that it fills gaps within WCRP and the wider research community. It was highlighted that the current IASC Marine Working Group mainly works with biogeochemical processes and was thought to be less focused on climate research. NORP would focus on observations and modelling and would include a Northern Oceans Observing System.

Actions and follow up:

- The SSG should ensure that NORP is not a duplication of other panels or similar initiatives, in particular the IASC Marine WG (SSG; April)
- There is a need to link to the International Arctic Science Committee (IASC) and ensure there is transparency and cooperation where needed. (IPO; April)
- Modifications to the language of the NORP ToRs is needed and should be agreed during the current SSG. (this SSG)
- A common letter of support from CLIVAR and CliC to the initiators of the proposal would be needed if the initiative is supported (Co-chairs).

WCRP Coordinated Regional Climate Downscaling Experiment (CORDEX)

Irène Lake, Director of the CORDEX Office reported on the CORDEX 2016 activities and plans for 2017. It was highlighted that in addition to Polar CORDEX, the CORDEX South, Central, and East Asian domains might be of interest to CliC.
The potential co-funding of Polar CORDEX between CORDEX and CliC was discussed.

Actions and follow-up:

- CliC IPO will reach out to the leads of CORDEX South, Central, and East Asia to see if there is scope for collaboration. (IPO; September)

- CliC IPO and CORDEX Director will aim to strengthen links between the two projects and agree on funding future activities together. (IPO; August)

Day 2, February 18, 2017

WCRP JPS M. Sparrow presented the national contributions to the WCRP budget.

Partner Presentations

1. *CLIVAR* Co-Chair Detlef Stammer presented CLIVAR highlights and potential linkages with CliC. The Climate Dynamic Panel was identified as one obvious link between the two Core Projects. CliC will help draft a Science Panel together with the two Panel Co-Chairs. James Overland, one of the project leads of the CliC TA on Linkages on Arctic Climate Change and Mid-Latitude and Weather Extremes will act as CliC representatives on the Panel.

Actions and follow up:

- CliC to link with the Climate Dynamics Panel Co-chairs and initiate drafting a Science Plan together. (IPO, Co-chairs; by August)
- James Overland will be the main link between the CDP and CliC.

D. Stammer also reported on the WCRP Grand Challenge on Sea Level (GCSL). Tony Payne (ISMIP6 Lead) and David Holland (MISOMIP Lead) are leading two GC SL Work Packages and are part of the GC Steering Committee. This represents a strong link between the Melting Ice GC/CliC and the GCSL and CLIVAR. ISMIP6 is also part of the GC.

D. Stammer reminded the SSG about the Regional Sea Level Changes and Coastal Impacts Conference to be held in New York on July 10-15, 2017.

2. Former *SPARC* Co-chair Greg Bodeker reported on SPARC activities including the link to the jointly run PCPI project. The following projects were presented:

- Solar & High-Energy Particle Influences
- Assessing Predictability Project (SNAP)
- Reanalyses Intercomparison Project
- Polar Stratospheric Clouds

Among SPARC's emerging activities, the clearest links to CliC are with the Near-Term Climate Forcers activity and impacts of black carbon on the cryosphere. The SPARC Reanalysis Intercomparison Project has one activity focusing on Polar Regions which may be of interest to CliC.

SPARC is heavily involved in four WCRP GCs:

- Near-Term Prediction
- Clouds, Circulation & Climate Sensitivity
- Climate & Carbon
- Weather & Climate Extremes

SPARC DynVar Working Group (Modelling the Dynamics and Variability of the Stratosphere-

Troposphere System) and SPAR SNAP (Stratospheric Network for the Assessment of Predictability) project could also have interest in the CLIVAR Climate Dynamics Panel.

Actions and follow-up:

- CliC to send the PPT slides from the SPARC presentation to PCPI leads to encourage links between the two projects. (IPO; ASAP)
- CliC focal points to explore if SPARC DynVar Working Group and SNAP project could also be involved in the Climate Dynamics Panel. (IPO; May)
- CliC should review the SPARC long-term Research Plan and send comments. (IPO, by June)
- CliC and CLIVAR Co-Chairs need to ensure connectivity between the two projects, especially on troposphere dynamics. (Co-chairs; July)

3. *Southern Ocean Observing System (SOOS)* representative and JSC Member Mauricio Mata reported on SOOS activities. Two SOOS Working Groups were identified of interest to CliC:

- Southern Ocean Fluxes (SOFLUX) WG which is currently developing four Task Teams*:* 1) Coordinating in situ observations; 2) Defining Requirements for Flux Observations; 3) Input to GCOS/GOOS; 4) Modelling and Satellite Synthesis
- Ocean below Antarctic Sea Ice and Ice Shelves (OASIIS); a POGO WG which was proposed by SOOS.
- SOOS NECKLACE project which aims to monitor how fast the Southern Ocean is melting Antarctica's ice shelves

Actions and follow-up:

- CliC will advertise the OASIS workshop to be held at the Alfred Wegner Institute (AWI) in June 2017, focusing on under ice strategy, both on observations and modelling of sea ice and ice shelves processes (IPO; ASAP)

4. *Permafrost Carbon Network (PCN)* coordinator Christina Schaedel updated the group with the latest news on PCN. The next PCN meeting will be held in June 2017 in Fairbanks. PCN Lead Ted Schuur participated in the IPCC Scoping meeting in Monaco in December. CliC SSG member Shichang Kang expressed interest in PCN and the opportunity of involving additional Chinese colleagues. Representatives from China are currently involved in PCN but new representatives are welcome to participate, including in the PCN annual meeting.

The CliC Climate & Permafrost Modelling Forum (PCMF) lead Kazuyuki Saito explained that there are some overlaps between PCN and PMF. He explained that localized information could be incorporated in global scale models which is something that PCMF could address and which is not being achieved by the PCN modelling group. It was noted that given the current CliC budget constraints PCMF should be fully part of PCN although at first it was designed as an international and thematic extension of PCN. K. Saito also mentioned the upcoming 2nd Asian Conference on Permafrost (ACOP2017) to be held in Sapporo, July 2-6, 2017, and the importance of involving young scientists.

Actions and follow-up:

- CliC SSG member Shichang Kang will reach out to PCN and will be added to the PCN mailing list. (Shichang Kang; by July 2017)
- CliC Co-chairs follow up with T. Shuur, C. Schaedel, K. Saito, and D. McGuire to see how to

incorporate PCMF into PCN. (co-chairs; before WCRP JSC)

- CliC to advertise ACOP2017 (IPO; ASAP)

5. L. Hislop and M. Sparrow briefly reported on the CliC contribution to *YOPP, POLAR18* in Davos, and the recent *Global Cryosphere Watch (GCW)* steering group meeting in Cambridge, UK (January). The CliC Director is on the GCW Steering Group which helps strengthen the links between the two initiatives.

CliC SSG 13 Meeting, Day 2, February 2017, Wellington, New Zealand
Photo by L. Hislop

Thematic Plenary Sessions

CliC Science Plan and Way Forward

After discussions at the SSG-13 the CliC Co-Chairs will re-structure/re-package the Science Themes and change their titles according to the following recommendations:

***Terrestrial Cryosphere**

-'Frozen ground' should be replaced with 'Permafrost'

-Question 4: '**How much carbon is available in frozen ground** ~~(and frozen marine sediments)~~ and how rapidly can this be emitted to the atmosphere as the climate warms?'

***Marine Cryosphere**

-Question 1 'What are the present mean states, natural variability, and recent trends in sea-ice ~~characteristics~~ [mass and distribution] in both hemispheres, and what are the physical processes and forcings that determine these? How will sea ice respond in the future to a changing climate? ~~Why has Antarctic sea-ice not been declining while Arctic sea ice has been?'~~

-> could be replaced with 'Why are Arctic and Antarctic sea ice behaving differently?'

-Question 2: How will [the interactions between] a changing sea-ice ~~cover~~ [and the atmosphere and oceans and its role in polar amplification] affect climate ~~through its interactions with the atmosphere~~?

-Add a point on submarine permafrost

***Ice Sheets, Glaciers and Sea Level:**

-Potential problem with the current title including 'Sea Level':
Ice sheets and glaciers should be included in the Terrestrial Theme
CliC doesn't work on Sea Level directly but looks at the contribution to Sea Level

-Should explain that we are answering the 'How', 'Where', 'Why' (and maybe 'Predictability') questions when it comes to sea level and freshwater availability

-Question 1: What is the contribution of glaciers, ~~ice caps~~ and ice sheets to changes in global sea level on decadal-to-century time scales?

-Question 3: 'What are the key sensitive regions for rapid changes in ice volume (i.e., ice masses grounded below sea level, over-deepened channels of outlet glaciers) and what are their potential contributions of sea level in a warming climate?' – *add something about ice shelves processes in marginal ice zone + should not forget Greenland in terms of stability*

-Question 4:' How stable are the Antarctic ice shelves given the ~~recent~~ increase in [both] the ocean [and atmosphere] temperatures ~~along the ice margins~~?'

***Global and Regional Prediction & Projection of the Cryosphere**

-Current title may not be adequate but is intended to packages together the other three remaining themes.

-May be replaced by 'Cryosphere and Climate Interactions'

Actions and follow-up:

-CliC Co-chairs prepare a first draft and distribute to the IPO (Co-chairs; by April)
Communications-internal & external

The Association of Polar Early Career Scientists (APECS) representative Christian Wild gave a brief presentation on APECS.

CliC Director L. Hislop gave an overview of the current status of communications within CliC.

Actions and follow-up:

- There is a need to find a better system for the IPO to get more frequent information on the science developing in the CliC community throughout the year. The IPO needs to be more proactive at seeking this information. (IPO; Ongoing)
- There is interest to revive the CliC newsletter which was produced from 2013-2015. The IPO will draft a template and send it to a core group for comments (IPO; by July 2017)
- The IPO will investigate whether a monthly/weekly Science Highlight – 'Paper of the week/month' – 'Read me!' can be made which would be kept on the homepage of the CliC website. (IPO; July 2017)
- IPO to explore the possibility/usefulness of having a closed Wiki/webpage for the SSG instead of sending emails. (IPO; by May)
- CliC to follow new WCRP name/logo branding. (IPO; Ongoing)
- IPO to increase the use of ResearchGate to follow the work of the CliC scientists (IPO; Ongoing)
- Reactivate the CliC LinkedIn (IPO; July 2017)
- Share the template of the 2016 Annual Projects with other WCRP Core Projects (IPO; before WCRP JSC)

Regional Engagement

CliC Director L. Hislop reported on the various regional activities that CliC could link to/is involved in.

Actions and follow-up:

- CliC SSG member H. Enomoto will keep CliC informed of IACS Sea Ice, Lake, and River Ice Division's activities, the Japan-Norway Arctic Science and Innovation seminar in Bergen/Tromsø, and the 2018 IGS Cryosphere and Biosphere Symposium. He will also encourage CliC representatives (BEPSII, PCN) to be on the Scientific Committee. (H. Enomoto; Ongoing)
- CliC IPO, H. Enomoto, and L. Smedsrud to follow up on Japan-Norway Arctic Science and Innovation seminar. (IPO, H. Enomoto, L. Smedsrud; ASAP)
- L. Smedsrud and S. Kang to follow up on CNARC and find out which Chinese institute is involved (L. Smedsrud, S Kang; July 2017)
- Chinese Society for Cryospheric Sciences – S. Kang is the Secretary – should keep CliC informed of future workshops and opportunities for co-sponsoring events.
- IPO to explore if there is a possibility to link to the Third Pole Science Summit (IPO; ASAP)

SSG Closed Session

The decision about the next SSG face-to-face meeting was postponed until after the JSC-38 meeting in April 2017. The SSG needs more clarity on the budget to see if it is reasonable to have an in-person meeting. Potential opportunities for an in-person meeting are the POLAR18 conference in Davos, CH in June 2018 or hosted by SSG member Shichang Kang in Lanzhou China. The next SSG meeting may also be held online to reduce budget pressure.

The SSG reviewed and revised the 2017 budget proposal from the CliC IPO and came to an agreement on allocations per project request. The CliC IPO may use its discretionary funds for extraordinary workshops after consulting the SSG. The IPO will inform the various projects of their budget allocations.

The future of the CliC IPO host agreement at The Norwegian Polar Institute (NPI) was discussed. More information should be available later in the spring from the Norwegian Polar Institute leadership. NPI is currently recruiting a new director, who is expected to be in place in April/May 2017.

SSG memberships of G. Krinner, R. Massom, T. Pavlova, S. Kang, and M. Johansson are expiring at the end of 2017. Co-chair G. Krinner is rotating off and a new Co-chair was suggested by IPO and current Co-chairs. A definite answer from the candidate co-chair should be received in March. Given the budget constraints, only one SSG member was extended for an additional two years, S. Kang from China. It was agreed to keep a smaller SSG at least for another year (end of 2018).

NORP was endorsed in principle if the conditions mentioned above (section on NORP) are adhered to.

Actions and follow-up:

- IPO follows up with NPI regarding the future of the host agreement and keeps the SSG informed (IPO; Ongoing)
- IPO informs various projects of their budget allocations (IPO; ASAP)
- IPO and Co-chairs to follow up with potential new Co-chair (Co-chairs; March 2017)
- Co-chairs follow up with regards to the possible formation of a NORP (Co-chairs; ASAP)

Agenda

FRIDAY, FEBRUARY 17, 2017 – RUTHERFORD HOUSE MEZZANINE FLOOR (ROOM RHMZ05)

13:00 – 14:25 CliC Overview 2017 (Part 1/2)
Opening and Welcome by host (James Renwick)

- Round of Introductions – 10 min (All)
- Logistics – 5 min (Gwen Hamon)
- Presentation of the agenda for the SSG meeting - 5 min (Lawrence Hislop)
- Overview of CliC Activities and International Project Office - 25 min (Lawrence Hislop)
- Overview from the WCRP Joint Planning Staff and Joint Scientific Committee – 20 min (Mike Sparrow and James Renwick)
- Questions & Discussion – 20 minutes

14:30 – 15:15
Nature Journal talk by Michael White + Coffee Break

15:30 – 16: 00 CliC Overview 2017 (Part 2/2)

- Overview from the CliC Co-Chairs – 10 min (Gerhard Krinner)
- Grand Challenge – 10 min (Gerhard Krinner)
- Questions & Discussion – 10 minutes

16:00 – 17:00 Science Plan and New Initiatives 2017

- Review of CliC science plan – 40 min (including questions & discussion) (James Renwick)
- Northern Ocean Regional Panel – 20 min (including questions & discussion) (Detlef Stammer and Inga Smith)

17:00 – 17:15 Coordinated Regional Downscaling Experiment (CORDEX)
Iréne Lake

19:00 Group Dinner *(hosted by the CliC International Project Office)*
Group dinner at Foxglove Bar & Kitchen (www.foxglovebar.co.nz/), casual harbor front location, 33 Queens Wharf, Wellington, 6011, New Zealand

SATURDAY, FEBRUARY 18, 2017 – UNIVERSITY OF VICTORIA, KELBURN CAMPUS, COTTON BUILDING, ROOM COTTON 217

09:00-10:15 – Partner Presentations [5 to 10 min each + 2 min of questions each]

- CLIVAR Overview (Detlef Stammer)
- GC on Sea Level Rise (Detlef Stammer)
- SPARC Overview (Greg Bodeker)
- SOOS Southern Ocean Observing System (Mauricio Mata)
- Permafrost Carbon Network (Christina Schaedel) (tentative)
- Polar18 Davos (Mike Sparrow and Lawrence Hislop)
- YOPP and GCW (Mike Sparrow and Lawrence Hislop)

Coffee break – 10 min

10:30 – 12:30 - Thematic Plenary Sessions (Part 1/2)

10:30-11:30 CliC Science Plan and Way Forward (James Renwick)

11:30-12:30 Communications – internal & external (Lawrence Hislop)

12:30-13:30 – Lunch (*catering hosted by James Renwick, Victoria University of Wellington and the CliC International Project Office)*

13:30 – 14:30 – Thematic Plenary Sessions (Part 2/2)

13:30-14:30 Regional Engagement (Himalayas, South America) (L. Hislop, D. Trombotto, S. Kang)

14:30-15:00 - Coffee Break

15:00-17:00 - SSG Closed Session - CliC SSG, IPO, and WCRP JPS Only

- Budget discussion and decisions
- SSG membership
- Future of CliC office
- Next SSG meeting
- Meeting wrap-up

CliC SSG 13, Day 1, February 2017, Wellington, New Zealand
Photo by L. Hislop

List of Participants

Bodeker, Greg	[former SPARC Co-Chair], Bodeker Scientific, New Zealand
Enomoto, Hiroyuki	[CliC SSG Member], National Institute of Polar Research, Japan
Galton Fenzi, Ben	Australian Antarctic Division, Australia
Hamon, Gwen	CliC International Project Office, Norway
Hislop, Lawrence	CliC International Project Office, Norway
Hock, Regine	University of Alaska Fairbanks, USA
Hudson, Stephen	[CliC SSG Member], Norwegian Polar Institute, Norway
Kang, Shichang	[CliC SSG Member], Institute of Tibetan Plateau Research, CAS, China
Krinner, Gerhard	[CliC Co-Chair], Glaciology and External Geophysics Laboratory, France
Lake, Iréne	CORDEX International Project Office, Sweden
Marzeion, Ben	University of Bremen, Germany
Massom, Rob	[CliC SSG member], Australian Antarctic Division, Australia
Mata, Mauricio	[WCRP JSC], Instituto de Oceanografia Brasil
Pavlova, Tatiana	[CliC SSG Member], Voeikov Main Geophysical Observatory, Russia
Renwick, James	[CliC Co-Chair], Victoria University, New Zealand
Ritz, Catherine	Glaciology and External Geophysics Laboratory, France
Roach, Lettie	National Institute of Water and Atmospheric Research, New Zealand
Saito, Kazuyuki	JAMSTEC, Japan
Schaedel, Christina	Northern Arizona University, USA
Smedsrud, Lars	[CliC SSG Member], University of Bergen, Norway
Smith, Inga	University of Otago, New Zealand
Sparrow, Mike	WCRP Joint Planning Staff, Switzerland
Stammer Detlef	[CLIVAR Co-Chair], University of Hamburg, Germany
Trombotto, Dario	[CliC SSG Member], CCT (Centro Cientifici Tecnólogico) CONICET Mendoza, Argentina
Wild, Christian	The University of Canterbury, New Zealand

Participating Remotely (tentative)

Jahn, Alexandra	[CliC SSG Member], University of Colorado Boulder, USA
Meiners Klaus	Australian Antarctic Division, Australia

Participants in the CliC SSG 13 Meeting, February 2017, Wellington, New Zealand
Photo by Good Chemistry Catering

Report prepared by Gwénaëlle Hamon (CliC IPO), Lawrence Hislop (CliC IPO), and Christian Wild (University of Canterbury/APECS), with contribution from Lettie Roach (National Institute of Water and Atmospheric Research, New Zealand)
Cover photo: courtesy of L. Hislop

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