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APPLICATE

Advanced Prediction in Polar regions and beyond: Modelling, observing system design and Linkages associated with a Changing Arctic climaTE

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EXECUTIVE SUMMARY

There are a number of European and international activities that are related to some of the activities planned in APPLICATE. While increasing the critical mass needed to make progress, effective clustering will be needed in APPLICATE to facilitate coordination and take advantage of synergies with related programmes and initiatives. To ensure effective collaboration with partners from Europe, North America and the wider international community, this document contains a Clustering Plan that will be further developed together with the partners in the context of the APPLICATE project. The strategy employed here is to focus on a limited number of clustering activities that will be given full attention to make a difference.

1. INTRODUCTION

1.1. Background and motivation

Advancing polar predictive capacity in the Arctic and understanding the impact of Arctic climate change on the weather and climate in midlatitudes has attracted considerable attention in recent years. It is not surprising, thus, that there are numerous projects tackling these issues. The advantage is that there is a critical mass needed to make much needed progress. However, in order to avoid unnecessary duplication and exploit synergies between the various programmes, effective coordination—or clustering as it is called in this document—is needed. The clustering concept employed in the APPLICATE project is outlined in this Plan.

1.2. Organisation of the plan

The Draft Clustering Plan is a living document that will be updated throughout the lifetime of the project. The Clustering Plan is described in Section 2. It contains a list of partners along with envisaged activities for three classes of partners: European partners, North American partners and international partners. The Plan is followed by a concise summary of the risks that could possibly jeopardize effective clustering and a list of critical interdependencies. The document finishes with a list of references and a description of acronyms.

2. CLUSTERING PLAN

2.1. General activities

APPLICATE will be actively engaging in clustering. Rather than working with a large number of small individual partners, APPLICATE aims to cluster with major European and international projects and players (see Table 1 for details).

Table 1: List of major partners for which clustering activities are envisaged.

Partner	Point of contact
<i>European partners</i>	
Blue-Action	Steffen Olsen and Daniela Matei
INTAROS	Stein Sandven
PRIMAVERA	Pier Luigi Vidale, Malcolm Roberts
CRESCENDO	Colin Jones
EU-PolarNet	Nicole Biebow
Copernicus Marine Environment Monitoring Service	Chris Harris Laurent Bertino
<i>North American partners</i>	
SIPN	Cecilia Bitz

Partner	Point of contact
US CLIVAR Working Group on Arctic-Midlatitude Linkages	Judah Cohen and Xiangdong Zhang
NCAR	Marika Holland
ECCC	Gilbert Brunet and Bill Merryfield
<i>International partners</i>	
YOPP	Thomas Jung
Belmont projects	James Screen and Daniela Matei
MOSAIC	Markus Rex
S2S Prediction Project	Frederic Vitart
APECS	Gerlis Fugmann

In order to facilitate high-level coordination between the different activities a coordinator network will be established. Table 2 summarizes the activities of the coordinator network.

Table 2: activities of the coordinator network

Activity	Leader	Action	Due date
Establish a coordinator network	Thomas Jung	Invite coordinators of relevant projects outlined in Tab. 1 to join the coordinator network	Apr 2017
Quarterly teleconferences of the coordinator network	Thomas Jung	Regular teleconferences Provide updates on recent developments in the respective projects and discuss opportunities for clustering activities	Ongoing

2.2. Clustering activities with INTAROS and Blue-Action

Effective clustering with the H2020-BG9 and H2020-BG10 projects INTAROS and Blue-Action, respectively, will be critical. While the planning of specific clustering activities is still under discussion, a number of possible clustering activities have been identified at the Kick-off meetings that are outlined in Table 3.

Table 3: Clustering activities with INTAROS and Blue-Action

Activity	Leader (APPLICATE)	Action	Due date
Joint session at the	Luisa Cristini	Organize General Assemblies of APPLICATE, Blue-Action and INTAROS in	Annually

Activity	Leader (APPLICATE)	Action	Due date
General Assemblies		parallel and ensure that there will be one joint session	
Develop plans for coordinated experimentation with Blue-Action for determining the impact of Arctic change on the weather and climate in midlatitudes	Doug Smith	Contribute to the development of a protocol for an international Arctic-midlatitude linkages model intercomparison project	Jun 2017
Provision of additional observations during YOPP Special Observing Periods (INTAROS) and subsequent experiments to assess the impact of additional observations	Peter Bauer		Sep 2017
Joint outreach activities between APPLICATE, INTAROS and Blue-Action	Halldor Johannsson Isadora Jimenez	Identify possible events that merit a joint approach Jointly organize and carry out outreach events	Ongoing
Joint sessions at international conferences	Selected PIs	Joint convening of scientific sessions at conferences (e.g. EGU and AGU).	Ongoing
Joint education activities	Gerlis Fugmann	Identify education activities that benefit from a joint approach (consider joint summer school) Jointly organize and carry our selected education activities	Ongoing

In the original Description of Action it was proposed to invite the coordinators of INTAROS and Blue-Action to become members of APPLICATE’s Scientific Advisory Board. Following discussions at the APPLICATE Kick-off meeting, including representatives from the two projects, it was decided not to implement this measure. Rather, clustering would be ensured through other measures outlined in this document.

2.3. Clustering activities with projects with funded under earlier calls of H2020 and FP7

There are a number of relevant projects funded under earlier calls of H2020 and FP7 (in particular PRIMAVERA, CRESCENDO and EU-PolarNet) for which clustering activities are envisaged:

Table 4: Clustering activities with FP7 and H2020 projects.

Activity	Leader (APPLICATE)	Action	Due date
Modelling Workshop	Thomas Jung Len Shaffrey	Organize and carry out joint workshop in Brussels to discuss possible synergies in the field of model evaluation at the process level	May 2017
Regular participation in General Assemblies including presentations of APPLICATE	APPLICATE PIs	Make sure that at least one of the APPLICATE PIs represents the consortium at General Assemblies	Ongoing
Invitation of project representatives to APPLICATE GA	Luisa Cristini	Send out invitation	Annually
Copernicus Marine Environment Monitoring Service (CMEMS)	Ed Blockley	Link with the Global Coupled NWP group (led by Chris Harris, Met Office) and the Arctic forecasting centre (led by Laurent Bertino, NERSC)	April 2017

2.4. Clustering with North American partners—Contribution to the Transatlantic Ocean Research Alliance

APPLICATE will “contribute to implementing the Transatlantic Ocean Research Alliance” through strong collaboration with coordinating bodies and numerous individual collaborators from the US (e.g. Sea Ice Prediction Network, NCAR, US CLIVAR Working Group on Arctic-Mid-latitude Linkages) and Canada (e.g. Environment and Climate Change Canada). A list of planned activities is given in Table 5.

Table 5: Contribution to the Transatlantic Ocean Research Alliance.

Activity	Leader	Action	Due date
Development of an Arctic-midlatitude linkages model intercomparison project (MIP)	Doug Smith	Establish a task team, identify co-chairs, develop protocol, engage international community, seek CMIP6 endorsement Starting point: US CLIVAR Workshop, Washington DC, 1–3 Feb 2017	Jun 2017
Invite relevant	Luisa Cristini		Annually

members of the US CLIVAR WG to APPLICATE GAs			
Represent APPLICATE in US CLIVAR WG meetings and teleconferences	Thomas Jung	Thomas Jung is member of the WG and will be attending upcoming meetings	Ongoing
Provide the APPLICATE consortium with regular updates on SIPN developments	Francois Massonnet Cecilia Bitz	Provide updates at regular teleconferences, give presentations at GAs, identify areas of collaboration	Ongoing
Contribute APPLICATE predictions to SIPN activities (also in the context of the Sea Ice Outlook)	Francois Massonnet	See D5.5 for details	May 2020
Assessment of Arctic heat budget in climate models (with NCAR)	Ed Blockley	See D1.5 for details	Ongoing
Explore possible collaboration with two new Arctic ONR projects	Thomas Jung	Contact Scott Harper from ONR to obtain point of contacts, establish contact, explore whether there is scope for collaboration	Apr 2017
Strengthen link with Environment and Climate Change Canada	Gilbert Brunet	Include representatives of the Meteorological Research Division (MRD) to WP3 and WP4 teams discussion related to Expected Impact 4: “Improve the uptake of measurements from satellites by making use of new Earth observation assets”.	April 2017

2.5. Clustering with partners at the international level

Further clustering activities are planned on an international level, some of which are listed in Table 6.

Table 6: Clustering at international level.

Activity	Leader	Action	Due date
Regular updates on YOPP at APPLICATE meetings and vice versa	Thomas Jung Luisa Cristini	Updates on YOPP will be part of all agendas, identify possible synergies in the different areas relevant to both initiatives	Ongoing

Activity	Leader	Action	Due date
Consider joint education activities such as webinar and schools	Gerlis Fugmann Jonny Day	Compare planned education activities in the context of YOPP and APPLICATE, and identify activities that should be carried out jointly	Apr 2017
Engage with relevant projects resulting from Belmont Forum call on climate predictability and inter-regional linkages	Thomas Jung Doug Smith	Invite PIs of relevant Belmont projects to participate in the Arctic-midlatitude linkages MIP	Apr 2017
Regular updates on MOSAiC at APPLICATE meetings and vice versa	Thomas Jung Gunilla Svensson	Updates on MOSAiC will be part of all agendas, identify possible synergies in the different areas relevant to both initiatives	Ongoing
Joint workshops and town hall meetings at major conferences	Thomas Jung Peter Bauer Luisa Cristini	When possible and appropriate, organise joint sessions, workshops, town hall meeting and other events with other projects at major conferences (e.g., EGU, AGU).	Ongoing

3. RISKS AND INTERDEPENDENCIES

3.1. Risks

The wide network of APPLICATE partners and team member involved in clustering activities ensures a variety of opportunities for collaborations with other projects and initiatives throughout the project lifetime.

Table 7: Risks to the clustering plan

Risk	Probability	Proposed risk mitigation strategy	Responsibility
Related European and international projects/activities are reluctant to engage in the clustering process	Low	APPLICATE will take a pro-active approach offering to organize, co-lead and synthesize clustering activities. Make use of existing links with any APPLICATE partner	Thomas Jung and Peter Bauer
Action leaders become unavailable	Low	The clustering plan will be updated regularly and action leader confirmed. Representation of APPLICATE at key events will be decided by the Executive Board before each event.	Thomas Jung and Peter Bauer

4. IMPLEMENTATION OF THE PLAN

The Clustering Plan will be implemented by the project partners and more specifically by the action leaders defined above. The WP8 leaders will be ultimately responsible for ensuring APPLICATE collaboration with other European and international programmes and for the coordination and monitoring of the planned actions. The WP8 leaders will report to the project Executive Board on the implementation of the plan and more generally on clustering activities. The Clustering Plan will be updated regularly and updates will be presented to the Executive Board. Updates to the Plan are foreseen for: September 2017; March 2018; September 2018; March 2019; September 2019; March 2020.

5. ACRONYMS

APECS	Association of Polar Early Career Scientists
Blue-Action	Blue-Action: Arctic Impact on Weather and Climate
CLIVAR	Climate and Ocean: Variability, Predictability and Change
CRESCENDO	Coordinated research in earth systems and climate: experiments, knowledge, dissemination and outreach
ECCC	Environment and Climate Change Canada
GA	General Assembly
INTAROS	Integrated Arctic Observing system
MOSAiC	Multidisciplinary drifting Observatory for the Study of Arctic Climate
NCAR	National Centre for Atmospheric Research
ONR	Office of Naval Research
PRIMAVERA	PRocess-based climate sIMulation: AdVances in high-resolution modelling and European climate Risk Assessment
SIPN	Sea Ice Prediction Network
S2S	Subseasonal to Seasonal Prediction Project
WGNE	Working Group on Numerical Experimentation
YOPP	Year of Polar Prediction