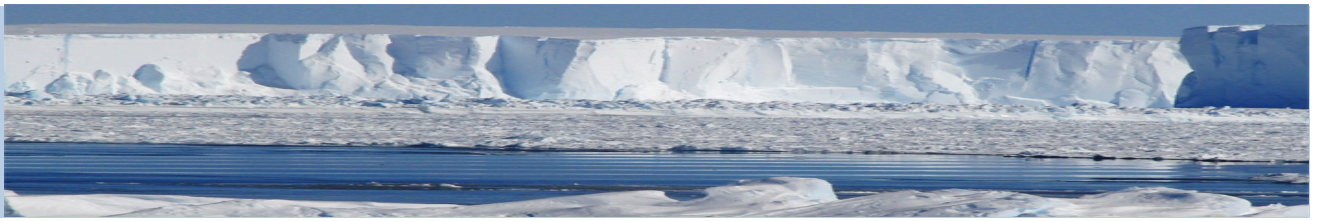
FRENCH ANTARCTIC, SUB-ANTARCTIC AND SOUTHERN OCEAN PROJECTS 2017 - 2018
Summer season and 2018 winter-over

MEMBER COUNTRY: France

National Report to SCAR for year: 2017-2018



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Standing Scientific Groups							

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Scientific Research Program

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AAA (Astronomy, Astrophysics from Antarctica)							NIR@ANT
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2)	**TILQUIN Andre (Working group D)**	Centre de Physique des Particules de Marseille, 163 avenue de Luminy, Case 902, 13288 Marseille cedex 09				tilquin@cppm.in2p3.fr	
3)	**MORETTO Gilberto (Working group D)**	CRAL CNRS - Observatoire de Lyon, Université Claude Bernard Lyon 1, 9, Avenue Charles André, 69561 Saint Genis Laval Cedex - France	04 78 86 85 37			gil.moretto@univ-lyon1.fr	

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ISSA						
	SAUCEDE Thomas (Co-chair)	Biogéosciences, UMR-CNRS 6282, Université de Bourgogne, 6 bd Gabriel 21000 Dijon, France. Muséum National d'Histoire Naturelle BP 225 29182 Concarneau Cedex, France.	+33-(0)3-80-39-63-79		thomas.saucede@u-bourgogne.fr	http://www.proteker.net
insert others as needed						

EXPERT GROUPS

ISMASS						http://www.climate-cryosphere.org/activities/groups/ismass
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BAMM (Birds and Marine Mammals group)						
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2)	**CHARASSIN Jean-Benoit (Member)**	Muséum National d'Histoire Naturelle, 43 rue Cuvier, 75231 Paris cedex 05, France	33 (0)3 40 79 31 64	33 (0) 40 79 57 56	jbc@mnhn.fr	https://www.scar.org/life-sciences/bamm

ABI (Antarctic Biodiversity Information Facility)					
1)	**ROPERT-COUDERT Yan (Steering committee Member)**	Centre d'Etudes Biologiques de Chizé, Station d'Ecologiede Chizé-La Rochelle, CNRS UMR 7372, 79360 Villiers en Bois - France	33 (0)5 49 09 35 11	yan.ropert-coudert@cebc.cnrs.fr	https://www.scar.org/life-sciences/eg-abi
ANTOS (Antarctic Near-shore and Terrestrial Observing System)					
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HASSEG (Humanities and Social Sciences Expert Group)					
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SCATS (Standing Committee on the Antarctic Treaty System)					
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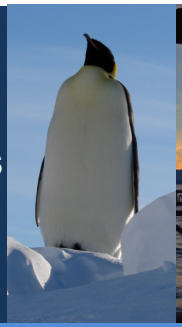
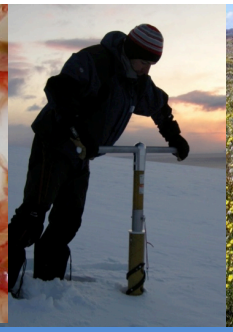
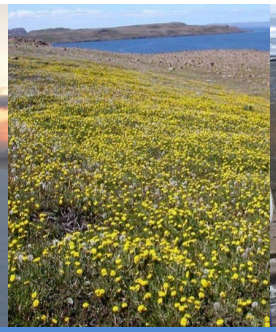
NATIONAL ANTARCTIC DATA CENTER					
French Antarctic metadata are under the administration of IPEV	**LEMAIRE Thierry**	IPEV- Institut Polaire Français Paul-Emile VictorTechnopôle Brest-Iroise, CS 60 075, 29280 Plouzané, FRANCE	33 (0)2 98 05 65 27	thierry.lemaire@ipev.fr	http://gcmd.gsfc.nasa.gov/KeywordSearch/Home.do?Portal=amd_fr&MetadataType=0

SCAR DATABASE						
insert name of database for which your country has responsibility						
Our metadata database and the portal are integrated into the (Global Change Master Directory) GCMD. Data from the Antarctic are accessible via this portal: (Global Change Master Directory).	**LEMAIRE Thierry**	IPEV - Institut Polaire Français Paul-Emile VictorTechnopôle Brest-Iroise - CS 60 075 29280 Plouzané FRANCE	33 (0)2 98 05 65 27		thierry.lemaire@ipev.fr	http://gcmd.gsfc.nasa.gov/; http://gcmd.gsfc.nasa.gov/KeywordSearch/Home.do?Portal=amd_fr
SCAR DATA AND PRODUCTS						
ANTABIS (biodiversity.aq)	**ROPERT-COUDERT Yan (member of the steering committee)**	Centre d'Etudes Biologiques de Chizé, Station d'Ecologiede Chizé-La Rochelle, CNRS UMR 7372, 79360 Villiers en Bois - France	33 (0)5 49 09 35 11		yan.ropert-coudert@cebc.cnrs.fr	

A BRIEF SUMMARY OF SCIENTIFIC HIGHLIGHTS




Life Sciences program

Acronym	Coordinator	Institution/Adress	Objectives and scientific highlights	Location	Email	Web site
ORNITHOECO (IPEV Prog 109)	**WEIMERSKIRCH Henri**	Centre d'Etudes Biologiques de Chizé - Equipe Prédateurs Marins CNRS 79360 Villiers en Bois, France	**Seabirds and marine mammals as sentinels of global changes in the Southern Ocean** The program uses seabirds and marine mammals as indicators of global changes in the marine ecosystems of the southern ocean. Through a network of 4 observatories, the populations of 25 species of marine top predators and their distribution at sea are monitored since 50 years. These individually based long term information are used to understand the processes though which climate affect marine ecosystems, and to make predictions on the future changes in these ecosystems, as well as to propose conservation measures to limit the impact of fisheries on populations.	Adélie Land, Crozet, Kerguelen, Amsterdam, St Paul	henri.weimerskirch@cebc.cnrs.fr	http://www.cebc.cnrs.fr/

ECOPHY ANTAVIA (IPEV Prog 137)	**LE BOHEC Céline**	UMR 7178 - CNRS CNRS 23, rue Becquerel 67087 Strasbourg cedex 2 France	**Adaptive strategies and population dynamics of penguins under environmental constraints.** Assessing the ongoing and future adaptive capacities of populations to cope with global changes is a major challenge. Relying on multi- and trans-disciplinary expertise, P137 has selected three main animal models (and phylogenetically-related top-predators): king penguins Aptenodytes patagonicus, Adélie penguins Pygoscelis adeliae, and emperor penguins Aptenodytes forsteri, to investigate the impact of climate on Southern Ocean ecosystems. Our unique database, without the biasing effects of flipper bands, allows us to study two contrasting, but nonexclusive, mechanisms that can explain their population responses to environmental variability (natural and anthropic): (i) phenotypic plasticity responses and (ii) microevolutionary processes. In addition to determine and monitor the flexibility and plasticity of numerous phenotypic traits (morphological, physiological, phenological and behavioural; accounting for sex, age, experience, condition, etc.), we also study the spatial structuration of the colonies according to different constraints (social structure, parasitism, predation, local meteorological conditions, etc., but also phylogenetic constraints). We also aim to evaluate the genetic basis of phenotypic traits and their plasticity, and assess genetic diversity and gene flow between colonies within and between archipelagos to gauge their adaptive capacities. The development of new predictive models of population responses to ecosystem changes (models integrating individual-based models within demographic-selection modelling framework, based on scenarios forecast by the IPCC 2014) will be precious tools for population conservation measures and ecosystem management. As never done before, we also propose to develop cutting edge technological innovations to minimize experimental disturbances and resulting scientific bias, such as mobile Radio Frequency Identification antennas on remote-operated vehicles (ROVers), automatic weighing and camera-tracking systems, or networked implanted micro-loggers. In return, it will open new opportunities for science.	Crozet, Adélie land, Kerguelen	celine.lebohec@iphc.cnrs.fr	http://www.iphc.cnrs.fr/
ECONERGIE (IPEV Prog 119)	**ROBIN Jean Patrice**	Institut Pluridisciplinaire Hubert Curien, Département d'Ecologie, Physiologie et Ethologie - CNRS 23 rue Becquerel 67087 Strasbourg France	**.Interactions between extrinsic and intrinsic factors in shaping offspring growth and adult phenotype: determinants of individual quality in the king penguin ?** Our research program ECONERGY is devoted to the study of the physiological, energetic and evolutive aspects of the so-particular adaptations exhibited by adults and king penguin chicks (Aptenodytes patagonicus) to their ashore living stages. These are characterized either in chicks by their extraordinary long growth period and the irregular feeding rates during the winter or in adults by their long-term fast during reproduction or molting. To answer our questions we realized studies via the study of the animal in his environnement with an ecophysiologist approach	Crozet	jean-patrice.robin@iphc.cnrs.fr	http://www.iphc.cnrs.fr/

SUBANTECO (IPEV Prog 136)	**RENAULT David**	Université de Rennes 1, Campus de Beaulieu UMR CNRS 6553 Ecobio 263 Avenue du Général Leclerc CS 74205 35042 Rennes Cedex	**Subantarctic biodiversity, effects of climate change and biological invasions on terrestrial biota.** The subantarctic islands are amongst the most isolated islands from any continental landmass and contain a number of the limited terrestrial habitats present at these latitudes. Interestingly, our knowledge of the subantarctic biodiversity, autoecology and effects of climate changes and biological invasions still contain many gaps. In parallel, accurate assessments of the sensitivity and vulnerability of polar organisms must be achieved in order to reliably predict species and community trajectories. In addition to climate changes, alien insects and plants can represent significant drivers of community structure and functional diversity in general. Changes in plant communities have strong bottom-up effects on multitrophic interaction networks with subsequent effects on above-ground animal communities in terms of abundance, taxonomic and functional diversity. In this project, we are investigating the spatio-temporal patterns of the subantarctic biodiversity, biological invasion processes, the effects of changing environments and multi-stress on species physiological ecology and the perception of the biodiversity in a non-market context.	Crozet, Kerguelen Islands	david.renault@univ-rennes1.fr	http://ecobio.univ-rennes1.fr
ETHOTAAF (IPEV Prog 354)	**BONADONNA Francesco**	CEFE-CNRS-UMR 5175, Centre d'Ecologie Fonctionnelle et Evolutive, Groupe d'écologie comportementale, 1919 route de Mende, 34293 Montpellier Cedex 05, France	**Behavioural ecology of subantarctic birds** Individuals are programmed to survive, mate, and optimise their fitness. To accomplish these tasks they interact with conspecifics, other organisms, and other elements of their environment. Behaviour thus is the baseline of all animal activities and is continuously modified by cues and clues coming from their environment. Our project, merges animal behaviour and sensory ecology, and aims at studying those cues and clues influencing seabirds' behaviour. Signals coming from other individuals broadcast important information for communication. We are particularly interested in the process of mate choice. This behavioural process in petrels passes through acoustic and olfactory signals giving information on direct or indirect (respectively) benefits that a potential partner may bear to the progeny. Signals coming from the surrounding animals may also influence animal behaviour without an actual communication between individuals. For instance, king penguins may use for their orientation an acoustic landscape formed by all individuals calling in the colony. In this case, what is used by an individual it is not the information directly broadcasted between two individuals, but the constant noise that all the information broadcasted forms in the environment. To test this hypothesis, we aim to study how this acoustic landscape is formed and whether it is actually used to orient. However, in penguins not only cues coming from other individuals may be important for orientation and positioning. Positioning in the colony and thus survival depend also from predators and other environmental features (waves, temperature, rain, flooding etc). Ultimately the colony structure may reflect how the birds respond to all the inputs coming from their surroundings. We therefore also need to understand colony formation and dynamics to understand movements of individuals in crowded environments.	Kerguelen, Crozet	francesco.bonadonna@cefe.cnrs.fr	http://www.cefe.cnrs.fr/

OISEAUX PLONGEURS (IPEV Prog 394)	**BOST Charles André**	CEBC UPR 1934 - Centre d'Etudes Biologiques de Chizé 79360 Villiers-en-Bois France	**Foraging Ecology and Energetic of Southern Diving Predators in Relation to Climatic Variability** The objectives of this proposal are to study the foraging strategies and energetics of the main diving birds of the Southern Ocean (especially penguins) that play in major role in food webs through a pluri-displinary study involving ecologists, physiologist and oceanographers and using bio-logging developments. We want to determine i) their foraging strategies : key at-sea habitats and environmental variables driving their movements at-sea, ii) their at-sea energetics , from the individuals to the population; iii) investigate the role of quality, age and experience in the foraging efficiency. The applied issues concerns the determination of important at-sea birds areas and the use of penguins as indicators of the impact of climatic variability, at short and long term, on some poorly known food webs of the South Indian ocean.	Kerguelen	bost@cebc.cnrs.fr	http://www.cebc.cnrs.fr
HEnergES (IPEV Prog 1037)	**GILBERT Caroline**	UMR 7179 CNRS/MNHN Ethologie, Bâtiment Camille Guérin bur. 3-07 Ecole Nationale Vétérinaire d'Alfort 7 avenue du Général de Gaulle 94700 Maisons-Alfort	**Huddling Energetics of moulting Elephant Seals : thermal ecology of moulting elephant seals** Southern elephant seals (Mirounga leonina) are faced with contrasting periods in terms of energy requirements. They alternate foraging periods at sea, where they feed to replenish their body fuels, and periods on land where they fast and complete their breeding cycle and moult. The moult is an energetically costly phase of their lifecycle during which Southern elephant seals aggregate or huddle more or less closely depending on local climate. Huddling is a powerful energy saving strategy widely used by mammals and birds facing high energetic demands. However, huddling behaviour and its energetics in Southern elephant seals have not yet been extensively studied. This project therefore focuses on this energy saving strategy used by Southern elephant seals during their moult on land. We hypothesize that behavioural and physiological adaptations linked to huddling during the moult, may be influenced by the organisms body condition and the environmental constraints while fasting. Huddling would thus allow individuals to minimise the time and energy required to complete the necessary replacement of skin and hair. Our main objectives are to determine how Southern elephant seals behave during the moulting period (huddling, posture, haul-out sites and changes of location), and how they cope with the energy demands of the moult (body composition, core, and skin temperature) according to weather conditions.	Kerguelen	caroline.gilbert@vet-alfort.fr	http://www.vet-alfort.fr http://www.mecadev.cnrs.fr
l'AMMER (IPEV prog 1091)	**ROPERT-COUDERT Yan**	Centre d'Etudes Biologiques de Chizé, Station d'Ecologiede Chizé-La Rochelle, CNRS UMR 7372, 79360 Villiers en Bois - France	**Adelie penguins as Monitor of the Marine Environment** This program proposal proceeds from the recent international efforts towards long-term monitoring of breeding and at-sea foraging performances of key species serving as eco-indicators of environmental changes. Here, foraging success of these species is linked to physical parameters of their environment and to resource availability. The data collected will consist in identifying the preferred foraging zones of Adélie penguins in Dumont d'Urville, Adélie Land and quantifying the hunting effort according to i) the availability of their main prey, ii) their own ability to find and capture prey, which depends on their individual quality. In partnership with the WWF, these data will be included in the databases of international programs of eco-regionalization (Census of Antarctic Marine Life, SCAR, CCAMLR). Comparisons with Adélie penguins' performance in other regions of the East Antarctic sector will be conducted, in collaboration with colleagues from Australian and Japanese polar institutes. Following the recommendations of the aforementioned international institutions, the program will put a special emphasis on the examination of the impact of human activities on penguins' performances through dedicated ecophysiological and behavioural monitoring.	Adélie Land	yan.ropert-coudert@cebc.cnrs.fr	http://www.cebc.cnrs.fr/

ASSET (IPEV Prog 1182)	**CHARASSIN Jean Benoit**	Laboratoire d'Océanographie et du Climat : Expérimentation et Approches Numériques Unité Mixte de Recherche 7159 CNRS / IRD / Université Pierre et Marie Curie/MNHN. Institut Pierre Simon Laplace. Boîte 100 - 4, place Jussieu 75252 PARIS Cedex 05. France	**Antarctic Seals and the Sea-ice EnvironmenT**. Given the sensitivity of the sea-ice zone to global warming (IPCC 2013), there is an urgent need for determining how top predators use their physical and biological environment, in order to understand and predict their response to climate change in the different Antarctic regions. Events such as calving of large icebergs provide a framework for natural experiments to study the consequences of habitat variations on higher trophic level populations. Because the occurrence of such extreme events around Antarctica is predicted to increase due to global warming, it is now timely to study the ecological response of higher trophic levels to calving of large icebergs and their oceanographic consequences. We propose to take advantage of the unique opportunity offered by the recent Mertz Glacier Tongue calving in Adélie Land (Feb. 2010) to continue an unprecedented time-series on the winter foraging movements and in-situ oceanographic conditions of an ice-dependent top predator, the Weddell seal, spanning over 13 years and encompassing this significant climate event. Using vertical T/S/chlorophyll profiles collected by the seals during their dives in winter, we will link their foraging behaviour to in situ hydrographic conditions before and after the Mertz Glacier calving, and assess impact of the Mertz Glacier calving on ocean/sea ice interactions and primary production in the Dumont d'Urville region, and their potential consequences on the seals foraging behaviour. We will also complete our time-series on the foraging ecology of Weddell seals during summer (post breeding), during which ice retreat stimulates primary production. Finally, we propose to develop new seal-borne sensors to measure otherwise poorly sampled key sea-ice parameters such as sea-ice thickness and sea-ice algae biomass. By so doing, we will simultaneously address urgent questions on upper trophic levels ecology, primary production processes in and below sea-ice, and sea-ice/ocean interactions in an innovative and cost-efficient way.	Adelie Land	jbclod@locean-ipsl.upmc.fr	https://www.locean-ipsl.upmc.fr/index.php?option=com_content&view=article&id=71&Itemid=170&lang=fr
PROTEKER (IPEV prog 1044)	**SAUCEDE Thomas AMEZIANE Nadia**	Biogéosciences, UMR-CNRS 6282, Université de Bourgogne, 6 bd Gabriel 21000 Dijon, France. Muséum National d'Histoire Naturelle BP 225 29182 Concarneau Cedex, France.	**Effects of global change on coastal marine life in Kerguelen Islands. Establishment of a base line for ecological and genetic monitoring, protection and conservation** PROTEKER is a pilot program that aims to establish a base line for assessing the impact of climate change in coastal marine ecosystems of Kerguelen islands by ecological and genetic monitoring at reference sites. The high diversity of coastal marine ecosystems is usually strongly impacted by environmental changes over the planet. In Kerguelen, such environments were little investigated compared to open sea areas, and are still poorly known. The project should provide stake holders and decision makers with scientific criteria for protection and conservation of Kerguelen coastal marine ecosystems. The PROTEKER first phase (2011-2014) aimed at assembling together and merging all available data from previous programs, selecting, and setting up monitoring stations for completion of the second current phase (2015-2018). During this second, operational phase, scientific investigations integrate all levels of marine biodiversity, from species to community levels and consist in a pluri-disciplinary approach including monitoring of abiotic parameters, habitat mapping, population genetics, genomics, functional ecology (physiological/trophic analyses), and macroecological analyses (ecological niche modelling). Expected results should provide with integrative models of Kerguelen coastal marine life distribution and sensitivity to environmental changes.	Kerguelen	thomas.saucede@u-bourgogne.fr	http://www.proteker.net

ECOPATH (IPEV prog 1151)	**BOULINIER Thierry**	Centre d'Ecologie Fonctionnelle et Evolutive - CNRS Department of Biology.1919 route de Mende, 34293 Montpellier Cedex 05, France. Drammensv. 201 University of Tromso N-9037 Tromso -	**Circulation of directly transmitted and tick-borne infectious agents in sub-Antarctic and Antarctic colonial vertebrate populations: surveillance, understanding and management implications.**Describing and understanding factors affecting the distribution and circulation of infectious agents in animal populations is important for basic and applied reasons. Populations of wild vertebrates living in southern polar areas are increasingly the subject of threats from infectious diseases, which can add to other environmental threats, and it is becoming critical to establish baseline data and sound understanding of the dynamics of host-parasite interactions in these systems. Populations of vertebrates breeding in colonies are especially important to study in those respects because they are distributed in very discrete units among and within which the transmission of infectious agents can be affected by various processes and can lead to disease outbreaks than can affect hundreds to thousands of individuals at the same time. In this project, we plan to explore how large scale dispersal processes and more local interactions between hosts and parasites can affect the dynamics of circulation of infectious agents and the occurrence of possible outbreaks. In order to do so, we will combine complementary methodological approaches from different fields, involving notably laboratory analyses of biological samples gathered in the field on identified individuals, the implementation of specific field experiments and the parallel development of a modelling approach. Modern molecular technics as well as tracking devices will be used to address specific questions. The project will also rely on the existing set of long-term IPEV research programs conducted on various key sites. The work will be conducted in tight coordination with the TAAF Nature Reserve.	Saint Paul, Amsterdam	thierry.boulinier@cefe.cnrs.fr	https://www.cefe.cnrs.fr/fr/recherche/ee/esp/777-c/151-thierry-boulinier
PlantEvol (IPEV prog 1116)	**HENNION Françoise**	Equipe "Evolution, Structure, et Dynamique de la Diversité" UMR 6553 ECOBIO, Université de Rennes 1, CNRS, Campus de Beaulieu, F-35042 RENNES cedex, FRANCE	**Plant biodiversity in subantarctic islands: evolution, past, and future, in changing environments** Contemporary climate change is already having a marked impact on sub-Antarctic environments. If we are to conserve the unique plants of this region we need to better understand their potential to respond to these long-term changes. Our programme takes a two-part approach combining macro- and micro-evolutionary studies to examine the origins and evolution of sub-Antarctic island plants and floras as well as how contemporary species interact with their environment. We propose interdisciplinary studies involving phylogenetics, cytogenetics, transcriptomics and analyses of trait variation across abiotic and biotic gradients. Combining insights into the history and current status of these plants will provide an unparalleled perspective on the potential for environmental change to shape plant diversity across a range of temporal and geographic scales.	Kerguelen	francoise.hennion@univ-rennes1.fr	http://ecobio.univ-rennes1.fr/news.php
POLARIS (IPEV prog 1102)	**HOURDEZ Stephane**	UMR CNRS 7144 Equipe Génétique de l'Adaptation aux Milieux Extrêmes - Station biologique de Roscoff - Place Georges Teissier, 29680 Roscoff, France	**Adaptive polymorphism, climate warning, and resilience of Antarctic annelid species** The research program is aimed at understanding the effect of very stable temperatures on the selection process and its effect on the resulting intra-populational adaptive polymorphism. It will be developed over 3 campaigns at Dumont d'Urville. The first year, we will sample populations of two sets of closely related species for two different families of polychaetes (total of 4 species) and evaluate the level of polymorphism for each. The second and third year will be dedicated to an experimental approach that will determine whether some alleles (or levels of polymorphism) are associated with better survival of a species to warming: TL50 will be determined, compared, and genotypes determined for the animals on either side of the TL50. Similar experiments will be carried out on populations of species close to the Antartic ones in a temperate area (Roscoff) for comparison with a fluctuating regime of temperatures. Genotyping will use a RAD-Tag approach: primers tagged for each individual specimen will be used to amplify the cDNA (or genomic DNA if introns are short) and the resulting tagged fragments will be used for 454 pyrosequencing. The selection regime will be evaluated for each studied gene using coalescence approaches and the underlying tests (Tajima, HKA, MK) used in population genetics.	Adélie land Dumond d'Urville	hourdez@sb-roscoff.fr	http://www.sb-roscoff.fr/fr/hourdez-stephane/82

IMMUNOTOXKER (IPEV prog 409)	**BETOULLE Stephane**	UMR-I 02 SEBIO Stress Environnementaux et Biosurveillance des milieux aquatiques – Université de Reims - REIMS France	**Aquatic Ecotoxicology and Immunotoxicology of aquatic organisms in Kerguelen Islands** Aquatic ecosystems in Kerguelen islands are a natural laboratory for the study of ecotoxicological effects related to Global Change. In this context, our objective is to contribute to: - a better understanding of the sensitivity of model organisms (Mytilidae / salmonidae) and the vulnerability of their populations to changes in environmental factors induced by global change; - set up an observatory in ecotoxicological risk assessment for freshwater-marine continuum in Kerguelen Islands.	Kerguelen	stephane.betoulle@univ-reims.fr	https://www.univ-reims.fr/sebio/enseignement/enseignements,16497,28150.html
SALMEVOL (IPEV prog 1041)	**GAUDIN Philippe**	UMR ECOBIOP - Département EFPA (Ecologie des milieux Prairiaux, Forestiers et Aquatiques). Pôle d'Hydrobiologie INRA Quartier Ibarron 64310 Saint-Pée sur Nivelle - France	**Evolutionary ecology of salmonids colonization of the Kerguelen Is.**Research conducted in the SALMEVOL project focuses on the evolutionary ecology of salmonids in the specific context of the successful colonization of the Kerguelen Is by some of the species that have been introduced 60 years ago. Trout is the only species that has successfully colonize almost all watersheds of the eastern half of the main island. The large-scale experiment that was initiated by these introductions is of major interest in the context of global warming and very fast glacier retreat in the sub-Antarctic region. The tremendous database and samples collected from 1954 to the present, together with our multidisciplinary expertise, allow us to explore some of the major issues concerning the success of biological invasions, the evolution and adaptation of species and their relationships with the rapid change in their environment.	Kerguelen	gaudin@st-pee.inra.fr	http://institut.inra.fr/Organisation/Annuaire-des-sites/Agriculture/Animal/Animaux-d-elevage/Aquaculture/Pole-d-hydrobiologie-Saint-Pee-sur-Nivelle
ZATA, Lter France (INEE CNRS)	**ROBIN Jean Patrice LABONNE Jacques**	**Pluridisciplinaire Hubert Curien**, Département d'Ecologie, Physiologie et Ethologie - CNRS 23 rue Becquerel 67087 Strasbourg France **UMR ECOBIOP** Aquapole - INRA Quartier Ibarron 64310 Saint-Pée sur Nivelle – France	In the French Southern and Antarctic Territories, the LTER ZATA (*Zone Atelier Antarctique et Subantarctique*) covers four sites on a vast territory which stretches from the Antarctic (Adélie Land) to the subtropical waters of the Indian Ocean (Saint Paul and Amsterdam Islands) through two groups of sub-Antarctic islands (Crozet Archipelago and Kerguelen Islands). The research sites are dedicated to long-term monitoring in terrestrial and marine environments. The monitoring refers to the changes occurring in organisms, populations and ecosystems due to the combined impact of human activities and climate changes. The LTER ZATA gathers 12 programs funded by the French Polar Institute IPEV.	Crozet, Kerguelen, Amsterdam, Adélie Land	jean-patrice.robin@iphc.cnrs.fr jacques.labonne@inra.fr	http://za-antarctique.univ-rennes1.fr/
CCAMLR research activities	**ELEAUME Marc France Scientific Representative**	Muséum national d'Histoire naturelle, 57 rue Cuvier 75231 Paris Cedex 05, France - Département Origines et Evolution, UMR ISYEB	Commission for the Conservation of Antarctic Marine Living Resources - fish stock assessment and habitat modeling; bycatch assessment and mitigation measures; VME assessment and habitat modeling	Crozet, Kerguelen, East-Antarctica, Elan Banc, Ob and Lena Bancs	marc.eleaume@mnhn.fr	https://www.ccamlr.org
CCAMLR European Scientific Representative	**KOUBBI Philippe**	UMR BOREA. MNHN, Sorbonne Université, CNRS,… 43, rue Cuvier. 75231 Paris Cedex 05 France	Marine Protected Areas	East Antarctica and Subantarctic high seas	philippe.koubbi@sorbonne-universite.fr	https://www.ccamlr.org

Kerguelen Plateau Symposium	**DUHAMEL Guy CHAZEAU Charlotte**	Muséum national d'Histoire naturelle, 57 rue Cuvier 75231 Paris Cedex 05, France - Département Adaptation du Vivant, UMR BOREA	Second symposium organised by Australia and France in Hobart in november 2017. During this symposium 7 conferences have been given by french researchers. Conference s will be published in a special issue of CCAMLR Science journal.	Kerguelen	guy.duhamel@mnhn.fr charlotte.chazeau@mnhn.fr	http://heardisland.antarctica.gov.au/research/kerguelen-plateau-symposium
Geosciences programs						
ARLITA (IPEV prog 1003)	**BASCOU Jérôme**	UMR 6524 - Magmas et Volcans - Equipe Transferts Lithosphériques Université Jean Monnet, 23 rue de Dr P. Michelon 42023 Saint Etienne - France	**Architecture of the East Antarctic lithosphere-Terre Adélie** The main goal of the ArLiTA project is to characterize the architecture and the deformation structures of the Neoarchean and the Paleoproterozoic lithosphere of the Terre Adélie and George Vth Land (East Antarctica: 135 to 145°E). The project integrates various complementary approaches: mapping from seismological data, systematic mapping of the structures by tectonic analysis, petrophysics (textural analyses, Anisotropy of Magnetic Susceptibility (AMS), seismic properties modeling…), characterization of materials and paleofluids (petrology, geochemistry, datations) and thermomecanics (thermobarometry).	Terre Adélie	jerome.bascou@univ-st-etienne.fr	http://lmv.uca.fr/fr/
SISMOLOGIE/OBS (IPEV prog 133)	**ALESSIA Maggi, ZIGONE Dimitri**	UMS 830, UMR 7516, Ecole et Observatoire des sciences de la terre. EOST, 5 rue René Descartes, 67084 STRASBOURG Cedex, France	**Geoscope (EOST)** The main objective of the "SEISMOLOGY/OBS" program is the continuous, broad-band, high-resolution observation of ground motion, especially high latitudes of the southern hemisphere, which are still insufficiently sampled despite the improvements of the past few years.Recorded and quality controlled data are freely distributed to the international scientific community both in real- and delayed-time. Our data contribute equally to global and regional tomographic studies, toseismicity studies, and to studies of microseismic noise. Real-time data from our sub-Antarctic stations are used for tsunami warning alerts in the Indian Ocean, for which they are particularly valuable.Our goals are to maintain or improve the quality of the data, to improve the robustness of the data recording and distribution procedures, and to increase their national and international utilization.	Crozet, Kerguelen, Amsterdam - St Paul, Terre Adélie	alessia.maggi@unistra.fr, zigone@unistra.fr	https://eost.unistra.fr/observatoires/sismologie/geoscope-eost/

GEOMAGNETISM/OBS (IPEV Prog 139)	**CHAMBODUT Aude**	UMS 830, UMR 7516, Ecole et Observatoire des sciences de la terre. EOST, 5 rue René Descartes, 67084 STRASBOURG Cedex, France	**The 5 permanent magnetic observatories (Amsterdam, Crozet, DômeC/Concordia, Dumont d'Urville and Kerguelen) are located in remote and isolated locations**. They are therefore of of great significance for the observation of the internal magnetic field but also for the study of phenomena generated by the solar wind at the surface of the globe (geoeffectivity). These 5 observatories meet the highest international standards and norms thanks to the development of specific procedures and acquisition chains. The Earth's magnetic field is recorded continuously with sampling rates of 1 second. Absolute manual measurements of the magnetic field components are also made daily throughout the year. Data processing and dissemination at the Central Terrestrial Magnetism Office (Bureau Central de Magnétisme Terrestre SNO-BCMT) and at world geophysical data centres (WDC for geomagnetism - World Data Centers, INTERMAGNET) are carried out every 12 hours UT thanks to the acquisition system integrating expedition protocols. The continuity, quality, stability and homogeneity of these observations are of prime importance for their continuous use by the both Solid Earth and Astronomy-Astrophysics scientific communities. Our goals are to maintain or improve the quality of the data, to improve the robustness of the data recording and distribution procedures, and to increase their national and international utilization.	5 stations: Crozet, Kerguelen, Amsterdam, Antarctic : Dumont d'Urville (Terre Adélie) & Concordia (Dome C)	aude.chambodut@unistra.fr	http://eost.unistra.fr/en/observatories/magnetism/bcmt-eost/
TALISKER (IPEV 1077)	**GUILLAUME Damien**	Equipe Transferts Lithosphériques UMR 6524 “Magmas et Volcans” Faculté des Sciences et Techniques 23 rue du Dr Paul Michelon 42023 Saint Etienne Cedex 02	**Chemical transfers across the lithosphere of Kerguelen: from the mantle to the ocean** : TALISKER will focus on the characterization of fluid circulations across the lithosphere of Kerguelen, from the upper mantle to the surface and their migrations to the Southern Ocean. The three approaches are - characterization of the fluid paleocirculations within mantle rocks or associated to the emplacement of plutonic rocks, - characterization of the present-days hydrothermal discharges and the fluid-rock-biosphere interactions, - quantification of the chemical fluxes from land to the ocean.	Kerguelen	damien.guillaume@univ-st-etienne.fr	http://lmv.univ-bpclermont.fr/fr/
MICROMETEORITES (IPEV prog 1120)	**DUPRAT Jean**	CSNSM-IN2P3 Université Paris Sud - CNRS PARIS FRANCE	**Micrometeorites at Concordia.** The general framework of the present project is the astrophysical context of the solar system formation and its evolution during the first millions of years after the gravitational collapse of the proto-Sun. Most of the constraints we have on this remote period are coming from the study of solar system small bodies (i.e. asteroids, comets) that are undifferentiated. The aim is collect micrometeorites (i.e. interplanetary dust particles) from central Antarctic snow at the vicinity of CONCORDIA Station. The major result of our previous collection program at Dome C (January 2006) was the discovery of a new type of interplanetary dust (i.e. ultracarbonaceous micrometeorites, UCAMMs) of most probable cometary origin (Duprat et al. Science 2010). These particles are very rare and Dome C has unique advantages for their recovery. We propose a 4 years program in order to perform a collection of more than 10 000 micrometeorites including several tens of UCAMMs. The mineralogical, chemical and isotopical study of these exceptional particles will be performed in the framework of a research contract that we recently obtained from the french “Agence Nationale de la Recherche” (ANR).	Concordia	Jean.Duprat@csnsm.in2p3.fr	https://indico.in2p3.fr/event/9490/

NIVMER (IPEV Prog 688)	**TESTUT Laurent**	Services d'Observations ROSAME & SONEL LEGOS - UMR 5566 - 14 Av. Edouard Belin 31400 Toulouse - France	The NIVMER program of the ROSAME tide gauge network - http:/www.legos.obs-mip.fr/en/observations/rosame/ - is complementing several national research programs using in situ sea level variation observations, in the peri-antarctic area of the Indian Ocean. These programs are related to tsunami warming system, satellite altimetry processing and validation, Antarctic Circumpolar Current monitoring and secular mean sea level trends. This tide gauges network is part of the GLOSS global network.	Terre Adélie, Kerguelen, Crozet, Amsterdam - St Paul	laurent.testut@legos.obs-mip.fr	http://www.legos.obs-mip.fr
Physical sciences programs						
GLACIOLOGIE Cncordia (IPEV Prog 902)	**RITZ Catherine**	Institut des Géosciences de l'Environnement UGA / IGE CS 40700 38058 GRENOBLE	**Glaciological studies at Dome Concordia** Recovering a 1.5 million years record of climate and greenhouse gases from Antarctica is a major objective of the ice core community (associated in IPICS, International Partnerships in Ice Core Science) and there is an agreement that such Oldest Ice could be found in the plateau area of the East Antarctic Ice Sheet. The region around the permanent station of Concordia (East Antarctica) is among the few spots possible. The aim of this project is to improve our ability to detect regions where ice could be very old. The approach is based on the association of various types of observations and ice flow/thermal modelling.This combination will help to: Test our ability to predict the thermal type of ice-bed interface and infer geothermal heat flux ; Validate ice flow models ; Determine badly known characteristics such as the mechanical properties of ice in these very cold and slow regions. The new observations planned are essentially radar measurements and borehole logging. We will also take advantage of information obtained in the EPICA ice core. Because of this link with the EPICA ice core, this project also involves sampling of the EPICA archive left at Concordia and some management of the ice core storage.	Concordia	catherine.ritz@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/
GLACIOCLIM-SAMBA (IPEV Prog 411)	**FAVIER Vincent**	Institut des Géosciences de l'Environnement UGA / IGE CS 40700 38058 GRENOBLE - France	**The glaciers, an observatory of climate, Antarctic component** This project is the renewal of GLACIOCLIM SAMBA program, which was initiated in 2004. GLACIOCLIM SAMBA is the Antarctic component of the GLACIOCLIM SO/ORE, in order to detect, monitor and understand climate and mass balance variability and change in the glacial environment. The program proposes surveying and maintaining the surface mass balance networks at Cap Prud'homme (CP, summer and winter surveys), along a 156 km transect (1 survey/yr), and at Concordia (1 survey/year or more) and the meteorological instruments deployed near CP. Special meteorological and glaciological observing periods are also planned in order to analyze particular meteorological processes.	Terre adélie Concordia	vincent.favier@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/

KESAACO (IPEV Prog 1048)	**FAVIER Vincent**	Institut des Géosciences de l'Environnement UGA / IGE CS 40700 38058 GRENOBLE - France	**KErguelen Surface Ablation, Accumulation and Climate Observation (KESAACO)** In the framework of the exploratory program KESAACO, it was proposed to develop a glaciological and meteorological networks on Kerguelen archipelago (49°S, 69°E) according to GLACIOCLIM Observatory. GLACIOCLIM is a French observatory to globally detect, monitor and understand climate and mass balance variability in the glacial environment. In this framework, 1 automatic weather station (AWS) and 1 hydrological station were intalled close to la Mortadelle hut. In the framework of a collaborating program (LEFE-KCRuMBLE) 4 additional AWS were set up on the archipelago at Port Christmas, Armor Lake, Sourcils Noirs, and Cap Cotter sites. Present project aims to define the necesary logistics to allow downloading of the AWS by IPEV staff in case of potential maintenance visists at the hut located close to the AWS.	Kerguelen	vincent.favier@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/
EAIIST (IPEV Prog 1169)	**SAVARINO Joël**	Institut des Géosciences de l'Environnement - CNRS UGA / IGE CS 40700 38058 GRENOBLE - France	**East Antarctic International Ice Sheet Traverse** Italian, French and US scientists unite their knowledge and capability to study the interior of the Antarctic plateau between the French-Italian Concordia station (75°S, 123° E), and the US South Pole station (90°S). The scientific objectives of EAIIST are to study the icy terrain of the Antarctic continent in its driest places. These areas are largely unexplored and unknowns and offer unique and extraordinary morphological characteristics : presence of mega-dunes, glazed ice surface, and thermal cracks, structure probable analog to glacial age on deep drilling sites such as Dome C or Vostok . A consortium of scientists from three nations, Italy, France and US is built around the idea to explore and study the geophysical (snow physics, surface mass balance, density, temperature, seismicity, etc.), geochemical (impurities, aerosols, air-snow transfer, water isotopes, etc.) and meteorological dimensions (AWS, atmospheric dynamic, air mass transport, etc.) of these most inhospitable, remote and unknowns regions of the planet by the means of a scientific traverse.	Concordia	joel.savarino@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/
ASUMA-ITASE (IPEV prog 1154)	**FAVIER Vincent**	Institut des Géosciences de l'Environnement - CNRS UGA / IGE CS 40700 38058 GRENOBLE - France	**Improving the Accuracy of the Surface Mass Balance of Antarctica - International Trans-Antarctic Scientific Expedtions (French contribution)** The present IPEV ASUMA-ITASE project, aims to define the logistical needs and requests in the framework of the ANR-ASUMA project (funded for 2014-2018). In this ANR project, we proposed to assess the integrated SMB value over Antarctica, by filling the gap that exists in the coast to central plateau transition zone, where large variations of SMB are observed within small distances. For this task, we will a) collect firn cores which will be dated using radiochemistry analyses and accurately analyzed for water isotopes and chemistry studies b) Interpolate SMB data with ground penetrating radar and satellite data, c) perform original field measurements of SMB and snow physics and robustly link them to satellite data. The present IPEV ASUMA-ITASE project will define the needs for three field trips planned during successive austral summers. Two small scale field trips are planned in the first 50 km from the coast to study melting areas in 2015-16 and 2017-18, and a long distance traverse is proposed for the 2016-17 summer. The main	Adelie Land and other	vincent.favier@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/

CALVA (IPEV prog 1013)	**GENTHON Christophe**	Institut des Géosciences de l'Environnement - CNRS UGA / IGE CS 40700 38058 GRENOBLE - France	**Calibration, validation of meteorological and climate models and satellite retrieval, Antarctic coast to Dome C** The aim of CALVA is to gather series of in-situ observations in Adélie Land and at the Dome C, which are needed to better evaluate and improve Antarctic meteorological models and global climate models over Antarctica. The observations also aim to contribute to improve remote sensing of precipitation. In Adélie Land, CALVA focuses on precipitation, extreme dynamic atmospheric boundary layer (catabtic winds) and drifting and blowing snow. At Dome C, CALVA also focuses on the boundary layer, which is extreme here in terms of temperature and inversions, and on precipitation. These are poorly known aspects of the Antarctic meteorology and climate, which are consequently poorly represented or simply ignored (blowing snow) in the models used for IPCC climate change predictions. The observation thus aim to improve those prediction, in particular those of the surface mass balance of the ice sheet and impact on sea-level.	Terre Adélie Concordia	Christophe.Genthon@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/
APRES3 (IPEV Prog 1143)	**GENTHON Christophe**	Institut des Géosciences de l'Environnement - CNRS UGA / IGE CS 40700 38058 GRENOBLE - France	**Antarctic Precipitation : REmote Sensing from Surface and Space** The antarctic region is still Terra Incognita in the global precipitation databases. The 1st climatology which does not heavily relies on models was recently published (2014). It is obtained from satellite-born radar data. The project is to deploy 1 or 2 summer campaigns at Dumont d'Urville to study the variability and microphysics of Antarctic precipitation in the coastal regions, as well as to calibrate and validate those data. The Ecole Polytechnique Fédérale de Lausanne meteorological radars, hydrometeor detecting lidars (Swiss and Italian), and the 70-m vertical profiling system from the CALVA program will be used during the field campaigns. It will be particularly interesting to operate the surface radars looking upward while the space radar overpasses, in order to directly cross the output from both sides of the atmosphere.	Adelie Land and Other	Christophe.Genthon@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/
DACOTA (IPEV prog 1053)	**LE MEUR Emmanuel**	Institut des Géosciences de l'Environnement - CNRS UGA / IGE CS 40700 38058 GRENOBLE - France	**Dynamics of coastal outlet glaciers and implications on the overall mass balance of the East Antarctic ice sheet.** Because of the test zone - observatory structure of the glacier, the objectives of the program remain the same by maintaining measurement protocols started (in order to detect significant trends) and also by proposing innovative measurements. The aim is twofold ; (i) directly use these data to improve our knowledge of the glacier (structure, dynamics..), (ii) use these data to feed numerical ice flow models in order to reproduce the glacier dynamics and its future behaviour in a changing environnment. Results obtained over the test zone (reasonnable extent, logistical facilities) are then intended to be generalized over the much wider WAL (Wilkes, Adélie Land) over which geophysical airborne have been undertaken and will be pursued in the framework of the project (Collaboration with the University of Texas). Although less exhaustive than those of the test zone, these measurements will serve for a larger-scale modelling effort aiming at refining the prediction of the future contribution of this entire sector to the sea level.	Adelie Land	emmanuel.lemeur@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/
CAPOXI (IPEV prog 1177)	**SAVARINO Joël**	Institut des Géosciences de l'Environnement - CNRS UGA / IGE CS 40700 38058 GRENOBLE - France	**Capacité oxidante de l'atmosphère 35-75 °S** The CAPOXI 35-75 project aims to document the oxidative capacity of the southern hemisphere following a North-South latitudinal gradient, from the Amsterdam Island (37° S) to the Concordia station (75° S), including the Dumont d'Urville coast station (67° S). The program will specifically be dedicated to solve few inconsistencies observed these past few years in Antarctica. If the high oxidative capacity of the Antarctic plateau atmosphere is a well established phenomena, induced by the snow emission of nitrogen oxides, it is however difficult to reconcile our current knowledge of the oxidation schemes with the ground	Concordia, Terre Adélie, Amsterdam	joel.savarino@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/

NDACC-Antarctica (IPEV prog 209)	**JUMELET Julien**	LATMOS - IPSL - UMR8190 - 4, place Jussieu 75252 Paris Cedex 05 - France	**Long-term UTLS and stratospheric ozone monitoring, stratosphere-climate interactions**: NDACC-France Antarctic contribution The objectives of the 209 program NDACC Antarctic consist in long term monitoring associated to process and climatological studies on both the particle population (aerosols, Polar Stratospheric Clouds - PSC) and chemical composition (including stratospheric ozone) of the Upper Troposphere / Lower Stratosphere. The global thematic is the stratospheric ozone chemistry and depletion, in a changing climate context. Consequences on UV-B radiation on ground, as well as ozone interactions with climate, especially concerning the impact of green house gases increases are also investigated. A set of instruments dedicated to the measurements of clouds occurrence and physical characterization, and ozone, along with the parameters involved in its chemical equilibrium is currently implemented on the French stations Dumont d'Urville and Kerguelen. These instruments are: UV-Visible spectrometers, UV-B broad-band detector, balloon ozone soundings and lidar (Rayleigh/Mie/Raman).	Concordia, Terre Adélie, Kerguelen	Julien.Jumelet@latmos.ipsl.fr	http://www.latmos.ipsl.fr/
RAYCO (IPEV prog 227)	**KLEIN Karl Ludwig**	CNRS UMR 8109 - LESIA Observatoire de Meudon LESIA - Bât. 14 92195 Meudon Principal Cedex - France	**Observation of the nucleonic cosmic ray component** Continuous observation of the nucleonic cosmic ray component: (1) as the French contribution to the international network of neutron monitors, (2) to study relativistic proton acceleration in solar eruptive events, and solar particle events in general, (3) to provide the data for, and to improve the models used by the Sievert system (DGAC-French Civil Aircraft Authority).	Terre Adélie, Kerguelen	ludwig.klein@obspm.fr	http://lesia.obspm.fr/
SUPERDARN KER (IPEV prog 312)	**MARCHAUDON Aurélie**	IRAP (Institut de Recherche en Astrophysique et Planétologie) 9 avenue du Colonel Roche BP 44346 31028 TOULOUSE cedex 4, France	**SuperDARN Kerguelen** The SuperDARN (Super Dual Auroral Radar Network) network of coherent High-Frequency (HF) radars is dedicated to global observations of the convection of the ionospheric plasma in the high-latitude regions: auroral zones and polar cap. The french SuperDARN Kerguelen radar is conjugate with the english Hankasalmi radar and with the incoherent scatter radars, ESR and EISCAT, all located in Scandinavia. This configuration greatly enhances the capabilities of the whole SuperDARN project on most of the scientific objectives, but more particularly on those centred on magnetic conjugacy between hemispheres. It will allow to understand the nature and the limits of magnetic conjugacy. Moreover, the SuperDARN network gives also complementary measurements to experiments onboard satellites, bringing a better understanding of the whole solar wind-magnetospshere-ionosphere system, particularly its evolution with time.	Kerguelen	aurelie.marchaudon@irap.omp.eu	http://www.irap.omp.eu/, http://www.irap.omp.eu/observations/projets/projets/projet-isl/projet-superdarn
CESOA (IPEV prog 414)	**LEGRAND Michel**	Institut des Géosciences de l'Environnement UGA / IGE CS 40700 38058 GRENOBLE - France	**Atmospheric Sulfur Cycle in relation with climate at mid and high Southern latitudes** The atmospheric Sulfur cycle at mid and high southern latitudes: interannual variability of marine DMS emissions (sea-ice, ocean temperature, oceanic DMS content, chlorophyll a, short-term climatic event such as ENSO) and future response to global climate change. That includes a year-record study of DMS and sulfur aerosol at DDU, Amsterdam and Concordia Station, DMS in seawater collected during ship traverses between different stations.	Terre Adélie, Amsterdam - St Paul, Concordia	michel.legrand@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/

SNO-AMS/ICOS-France (IPEV prog 416)	**DELMOTTE Marc**	Service National d'Observation ICOS-Fr LSCE/IPSL - CNRS CE Saclay - Orme des Merisiers Bât.703 91191 Gif sur Yvette - France	**GREENHOUSE GAS MONITORING AT AMSTERDAM ISLAND** The goal of the greenhouse gases measurement program at Amsterdam Island is to contribute to long term atmospheric monitoring within the framework of the ICOS-France National Observation Service and the international GAW (Global Atmospheric Watch) network from World Meteorological Organization. Amsterdam Island is a reference site for atmospheric watch (clean site), and measurements conducted in-situ enable us to better estimate the austral ocean impact as a carbon sink and better understand the associated mechanisms. This location is also well suited to trace emission transport coming from South Africa. In addition to continuous CO2 and CH4 measurements and weekly flask sampling (CO, H2, N2O, CO2 isotopes) conducted since several years, we propose to set up continuous CO and N2O measurements and to restart the O3 monitoring over the next 4 years. The 222-Radon measurements as well as meteorological parameters which enable an accurate air masse origin characterization will be continued. In order to further increase our knowledge about the Austral Ocean carbon sink, we think about setting up a continuous and high precision atmospheric oxygen analyzer.	Amsterdam - St Paul, Crozet	marc.delmotte@lsce.ipsl.fr	https://icos-atc-demo.lsce.ipsl.fr/node/31
HAMSTRAD (IPEV prog 910)	**RICAUD Philippe**	Meteo-France, CNRM/GAME, CNRS URA 1357 - CNRS 42 avenue G. Coriolis 31057 Toulouse - France	**H2O Antarctica Microwave Stratospheric and Tropospheric Radiometers** The HAMSTRAD radiometer is a genuine state-of-the-art microwave instrument dedicated for the detection of 1) the 60-GHz oxygen line to measure tropospheric temperature profile, and 2) the 183-GHz water vapour line to get tropospheric H2O from the surface to about 10 km altitude with a time resolution of about 7 minutes. In January 2009, HAMSTRAD was installed outdoor at Dome C for 12 days. The radiometer has been definitively deployed inside a dedicated shelter in January 2010 and is working since then except during the period June 2011-February 2012 due to an instrument failure. The fully automated instrument needs a liquid nitrogen calibration once/twice per year. Data recorded since 2009 have been intensively analyzed and scientific results have been published (10 peer-reviewed papers). The aim of the HAMSTRAD project is to measure the trends in water vapour and temperature profiles from the lower part of the troposphere to the lower part of the stratosphere and their links with climate change. It is also intended to study the water budget (solid/liquid and vapour) above Dome C combining different measurements performed at the station and in the vicinity (satellites) and models.	Concordia	philippe.ricaud@aero.obs-mip.fr	http://www.aero.obs-mip.fr/

GMOstral (IPEV prog 1028)	**DOMMERGUE Aurélien**	Institut des Géosciences de l'Environnement - CNRS UGA / IGE CS 40700 38058 GRENOBLE - France	**Global Mercury Observation system in austral and antarctic lands** The GMOstral is initiated by a European project GMOS (Global Mercury Observation System), which is developing a coordinated global observation system for the global pollutant, atmospheric mercury (Hg). Through a cyber-infrastructure it provides with high quality data for the validation and application of regional and global scale atmospheric models, to give a firm basis for future policy development and implementation. In this context we have implemented three Hg monitoring stations in sub-Antarctic and Antarctic sites (AMS, DDU and DMC) in order to document and monitor the atmospheric Hg trends in remote places of the southern hemisphere and to study the almost unknown reactivity of Hg in those regions, in particular diurnal cycling, deposition, and reemission trends in Antarctica.After 4 years of successful measurements, we propose to extend these monitoring activities on 2 sites (AMS and DMC) in order to provide with high quality data of atmospheric Hg that are freely accessible in the frame on an international convention (Minamata convention) and a global monitoring network acquire longer data set (up to 8 years of continuous data) in order to document the seasonality of Hg compounds and short term variation. Are the international regulations leading to decreasing atmospheric trend in the Southern Hemisphere or are the trends offset by increasing natural emission (from oceans or biomass burning) ? improve our knowledge on the transport and reaction pathways of mercury using GEOSCHEM 3D model	Terre Adélie, Amsterdam - St Paul, Concordia	aurelien.dommergue@univ-grenoble-alpes.fr	http://lgge.osug.fr/
NIVOLOGIE (IPEV Prog 1110)	**PICARD Ghislain**	Institut des Géosciences de l'Environnement UGA / IGE CS 40700 38058 GRENOBLE France	**Snow properties evolution in a changing climate in Antarctica** The NIVO program is interested in the evolution of snow at and near the surface from time scales of hours to a few years. The aims is to understand the role of snow in the climate. The snow surface exchanges momentum, energy, water vapor (for different isotopes) with the atmosphere which gives rise to numerous feedback loops involving many processes (radiative, aerodynamic, turbulent, …). To understand and parametrize these processes and feedbacks in snow and climate models, NIVO operates a set of automated instruments and collect manual measurements in order to characterize snow in the shallow sub-surface and in depth up to tens of meters. The goal of the next four years is to investigate inter-annual variations of grain size, density, albedo, temperature and the isotopic composition, to understand the evolution of the surface roughness, to advance on the exchange of vapor for stable water isotopes, and to progress on metamorphism laws at low temperature. NIVO also aims at providing essential data on snow microstructure and ice electromagnetic properties for the calibration/validation of satellite data which in turn helps to generalize the findings from Dome C to the whole Antarctic continent.	Concordia, Cap Prudhomme	ghislain.picard@univ-grenoble-alpes.fr	http://lgge.osug.fr

SUBGLACIOR (IPEV Prog 1119)	**CHAPPELLAZ Jerôme**	Institut des Géosciences de l'Environnement UGA / IGE CS 40700 38058 GRENOBLE France	**in-SiTU proBing of GLACier Ice for a betterunderstanding of the Orbital Response of climate** The IPEV SUBGLACIOR project makes the logistical counterpart of the following scientific projects already funded : (1) the European ERC Advanced grant project ICE&LASERS 2012-2017 (coordinator : J. Chappellaz), (2) the French ANR "Blanc" project SUBGLACIOR 2012-2016 (coordinator : O. Alemany), (3) the sponsoring of the BNP Paribas foundation (SUBGLACIOR 2011-2013, coordinator : J. Chappellaz), and (4) one of the components of the Equipex project CLIMCOR (coordinator : D.D. Rousseau, INSU/C2FN). These joint projects (or component) aim at building a revolutionary probe to measure as a function of depth, inside the glacier and in real time, the water isotopic composition (climatic signal) and the concentration of greenhouse gases (methane, and eventually carbon dioxide - provided that we handle solubility effets -), without bringing an ice core at the surface. Ultimately, the probe will allow us to rapidly test the pertinence of an Antarctic site for a new deep drilling operation, similar to EPICA, to study the link between climate and greenhouse gases through the main climatic transition of the mid-Pleistocene one million years ago. In addition, the probe will already obtain - within a single field season - the first and most important signals over this period of time.The last year of the project, 2016/2017, will be dedicated to the implementation of the SUBGLACIOR probe at a site of the East Antarctic plateau which can easily be reached from Concordia. The site will have been pre-selected by the "oldest ice" committee of the International Partnerships in Ice Core Sciences (IPICS).	Concordia	jerome.chappelaz@univ-grenoble-alpes.fr	https://www.ige-grenoble.fr/
CHINSTRAP (Prog IPEV 1112)	**HUBERT Guillaume**	ONERA DESP - BP 74025 2, av. Edouard Belin 31055 TOULOUSE CEDEX 4 - FRANCE	**Continuous High-altitude Investigation of Neutron Spectra for Terrestrial Radiation Antarctic Project** The CHINSTRAP project aims at installing a high-energy extended neutron spectrometer at the Concordia station in Antarctic. The particularities of this location are unique (high altitude and proximity to the geomagnetic pole) and allow long-term measurements dedicated to the study of the atmospheric natural radiative environment dynamics for Space Weather applications. These data will complete the ones already obtained at the Pic-du-Midi in France and in the Pico dos Dias in Brazil, near the South Atlantic Anomaly. The project includes two phases: the first consists in installing and operating the HERMEIS in the station; the second consists in investigating the data then in combining their analyses to those from other measurement sites.	Concordia	guillaume.hubert@onera.fr	www.onera.fr
AERONET (IPEV Prog 1165)	**GOLOUB Philippe**	Université de Lille 1, Aerosol-Radiation Interactions Group LOA, Laboratoire d'Optique Atmosphérique Bât. P5 59655 Villeneuve d'Ascq cedex - FRANCE	**Aerosol Monitoring using sun photometer at Amsterdam Island (AERONET/PHOTONS station**) This project aims to maintain the AERONET measurements at Amsterdam Island. These measurements provide optical and microphysical properties of aerosols in the atmospheric column. Very few "clean marine" stations are currently in operation in the AERONET network. Observations initiated since 2002 at Amsterdam Island thus represent an important component of AERONET and will continue in this new IPEV project.Most of the work on site concerns for the installation (once / year) and monitoring (maintenance, data) of the measurements provided by a sunphotometer CIMEL. Data is shared and publicly accessible in near real time in the AERONET database. This project was previously managed by the IPEV program AEROTRACE (415) led by Jean Sciare (LSCE).	Amsterdam	philippe.goloub@univ-lille1.fr	http://www-loa.univ-lille1.fr/recherche/Aerosols/fr/articles.php

BETA PIC (IPEV prog 1179)	**GUILLOT Tristan**	UMR 7293 - CNRS/Observatoire de la Côte d'Azur Observatoire de la Côte d'Azur BP 4229 06304 Nice - France	**ASTEP/Beta Pic: A continuous monitoring of Beta Pictoris and its young planetary system.** β Pic is the first star for which we have been able to image a protoplanetary disk, in 1984. It is around this stars that the existence of "exocomets" was first inferred. In 2008, a planet was discovered at about 8 au from the star (more or less the distance between Saturn and the Sun) . The study of the planet, β Pic b, and of the circumstellar dust disk, is a unique source of information to understand these extremely young systems and planet formation. The passage of β Pic b almost in front of its star between April 2017 and January 2018 led to an international collaboration to follow the system.Between April and September, only the telescopes located in Antarctica have good viewing conditions. During 2017, ASTEP has obtained the best photometric observations of the system. We propose to pursue the observations for a second year. This will create a unique database of the system, enabling the detection of other planets in the system and a full characterization of the star.	Concordia	tristan.guillot@oca.eu	https://www.oca.eu/fr/accueil-lagrange
SolarIce (IPEV prog 1145)	**BARONI Mélanie**	CEREGE - Aix-Marseille Université- France	**Study of the Solar Forcing over the Holocene from a new Dome C Ice Core** Solar forcing is one of the main natural climate forcings with greenhouse gas emissions, insolation or volcanic forcing. During the last millennium, solar minima often coincide with periods of enhanced volcanic forcing, making the attribution of climate variations to one or the other cause ambiguous (IPCC, 2013) ; this should not be the case for earlier millenia and it has to be tested on expanded records. In addition, the information collected on the variation of solar forcing in the past until today, can be used in climate models and allow to better constrain the part of the current climate change that is of natural origin and that of anthropogenic origin. There are various indicators of solar activity such as irradiance values measured by satellite for 30 years, sunspots observed on the Sun's surface since the early 17th century but for longer timescales, only cosmogenic isotopes such as beryllium-10 (10Be) can provide information on past solar activity. The objective of this project is to propose a new reconstruction of solar activity during the Holocene, our current interglacial. This reconstruction will be based on a 10Be record at high resolution obtained from a new 350 m ice core drilled on the Concordia-Dome C site. In order to make a reference of this record, we will implement a multiproxy approach at a resolution rarely achieved in the past. Many data will be collected to characterize the evolution of the past atmospheric composition (carbon monoxide and methane), the variation of local temperature, humidity sources, volcanic forcing, biomass burning, the dust sources and the origin of air masses that reach Concordia-Dome C. Because of an accumulation of troubles with the two drillers used on the field, it was not possible to reach 350m but instead 215 m. A supplementary season in 2017/2018, will be necessary to reach the initial objective using the same drilling hole and the James Ross driller that is going to be repaired at the LGGE.	Concordia	baroni@cerege.fr	https://www.osupytheas.fr/?+-CEREGE-+&debut_articles=49

Human and social sciences						
ERISI (IPEV Prog 1170)	**TROUSSELARD Marion**	Institut de recherche biomédicale des Armées (IRBA) = Armed Forces Biomedical Research Institute - Ministère de la Défense	**Study on the Evolution of individuals' Relation with their Close Spaciality during a stay in extreme and unusual and/or isolated and confined environment from the perspective of a take into account of adaptive stress.** The sensory perception assessment protocol ERISI, Year 2 – known as « Per-Sens » part, aims to study the possible sensory perception changes that might experiment individuals during long stay/missions in extreme & unusual environments (EUE - eg. [sub]antarctic stations – up to 14 months in the field) or isolated & confined environments (ICE - eg. Submarines SSBN – board from 70 to 90 days). If, literature indicates that sense, considered independently of each other, might be modified by such experiences, no holistic research has yet measured what is the very impact of a long stay/mission in EUE/ICE on the sensory perception of individuals and, consequently, the impact of possible changes of perception on their mood, stress level and/or performance. This study will focus on the evaluation of (1) visual, (2) olfactory, (3) gustatory, (4) tactile, (5) auditory individuals' perceptions and (6) proprioception and body scheme, on an triple investigative pattern "at the beginning", "during" "at the end" of the stay/mission in ICE/EUE.	Adelie Land, Dumont d'Urville Kerguelen and other	marion.trousselard@gmail.com	https://www.defense.gouv.fr/sante/notre-expertise/recherche-biomedicale/recherche-biomedicale

Oceanographical campaigns in the Southern Ocean *(R/V Marion Dufresne)*

N°	Acronyme	PI	Title	Discipline	Location
MD 206 / VT 152	OHA-SIS-BIO-9	J.Y. Royer IUEM	Observation Hydroacoustique sismicité et biodiversité	Marine Geosciences	Southern Indian Ocean
MD 206 / VT 153	OISO-27	N. Metzl / C. Le Monaco LOCEAN	Variations cycle CO2 océanique, échanges air-mer associés, C02 anthropique dans l'ocean	Physical oceanography	Southern Indian Ocean
MD 206 / VT 154	THEMISTO	C. Cotté MNHN	Distribution et écologie du zooplancton et des poissons pélagiques mesurés par hydroacoustique	Marine biology	Southern Indian Ocean
MD 206 / VT 155	REPCCOAI	P. Koubbi MNHN	Biogéographie du plancton et des poissons mésopélagiques de l'océan Austral	Marine biology	Southern Indian Ocean
MD 207 /	MAGOFOND 4 lrg 2	J. Dyment/IPG	Variation du champ magnétique terrestre, fréquences des inversions géomagnétiques, et reconstructions paléogéographiques avant, pendant et après la Longue Période Magnétique Calme du Crétacé	Marine Géosciences	Southern Indian Ocean
VT 156	SOCLIM RECUP	S. Blain / UPMC	Le projet SOCLIM vise à mettre en œuvre de nouvelles méthodes d'acquisition de données in situ qui permettront d'améliorer qualitativement et quantitativement les connaissances sur l'Océan	Marine Geosciences	Southern Indian Ocean
MD 208	WALTERS SHOAL	P. Bouchet / JF Ternon / MNHN	Conservation et exploitation durable des écosystèmes de monts sous-marins et sources hydrothermales de l'Océan Indien Sud-Ouest	Marine biology	Southern Indian Ocean
MD 209	NAUSINOOS 2	Y. Reaud / IPEV/INSU	Technology testing campaign of the new generation of the giant corer CALYPSO IV.		Southern Indian Ocean