

**MEMBER COUNTRY: France**  
**National Report to SCAR for year: 2014-2015**

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ACTION GROUPS							
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2)							

<b>EXPERT GROUPS</b>							
<b>BAMM (Birds and Marine Mammals group)</b>							
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<b>GIANT (Geodetic Infrastructure for Antarctica)</b>							
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<b>SCATS (Standing Committee on the Antarctic Treaty System)</b>							
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<b>NATIONAL ANTARCTIC DATA CENTRE</b>							
French Antarctic metadata are under the administration of IPEV	<b>LEMAIRE Thierry</b>	IPEV- Institut Polaire Français Paul-Emile Victor Technopôle Brest-Iroise, CS 60 075, 29280 Plouzané, FRANCE	33(0)2 98 05 65 00	33(0)2 98 05 65 55		<a href="mailto:thierry.lemaire@ipev.fr">thierry.lemaire@ipev.fr</a>	<a href="http://gcmd.gsfc.nasa.gov/KeywordSearch/Home.do?Portal=amd_fr&amp;MetadataType=0">http://gcmd.gsfc.nasa.gov/KeywordSearch/Home.do?Portal=amd_fr&amp;MetadataType=0</a>

<b>SCAR DATABASE</b>						
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).	<b>LEMAIRE Thierry</b>	IPEV - Institut Polaire Français Paul-Emile Victor Technopôle Brest-Iroise - CS 60 075 29280 Plouzané FRANCE	33(0)2 98 05 65 00	33(0)2 98 05 65 55	thierry.lemaire@ipev.fr	<a href="http://gcmd.gsfc.nasa.gov/">http://gcmd.gsfc.nasa.gov/</a> ; <a href="http://gcmd.gsfc.nasa.gov/KeywordSearch/Home.do?Portal=amd_fr">http://gcmd.gsfc.nasa.gov/KeywordSearch/Home.do?Portal=amd_fr</a>
<b>SCAR DATA AND PRODUCTS</b>						
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**A BRIEF SUMMARY OF SCIENTIFIC HIGHLIGHTS\*:**

**Life Sciences program**

<b>Acronym</b>	<b>Coordinator</b>	<b>Institution/Adress</b>	<b>Objectives and scientific highlights</b>	<b>Location</b>	<b>Email</b>	<b>Web site</b>
<b>ORNITHOECO</b> (IPEV Prog 109)	<b>WEIMERSKIRCH Henri</b>	Centre d'Etudes Biologiques de Chizé, 79360 Beauvoir sur Niort	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 through 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	<a href="mailto:henri.weimerskirch@cebc.cnrs.fr">henri.weimerskirch@cebc.cnrs.fr</a>	<a href="http://www.cebc.cnrs.fr/">http://www.cebc.cnrs.fr/</a>
<b>ECOPHY</b> (IPEV Prog 137)	<b>LE BOHEC Céline</b>	IPHC-DEPE, CNRS, 23 rue Becquerel, 67087 Strasbourg Cedex, France	<b>Adaptive strategies and population dynamics of penguins under environmental constraints.</b> The objective is to evaluate the capacity of populations of king, Adélie and emperor penguins to adapt to global changes through the study of functional mechanisms and microevolutionary processes. Our unique database, without the biasing effects of flipper bands, will allow us to study the impacts of environmental variability (climatic and trophic) on survival, the phenology of reproductive performance, and the foraging patterns of different penguin cohorts, accounting for their age, status, experience, and other phenotypic traits (morphological, physiological, and behavioural; traits whose plasticity and heritability will be considered). We will also study the spatial structuration of colonies and the function of different constraints (parasitism, predation, meteorological conditions, location, etc.) with the use of robotic buggies and automated camera systems, as well as the structuration, the diversity, and the genetic variability between colonies within and between archipelagos. Finally, we will conduct a prospective analysis of the populations changes based on climate scenarios.	Crozet, Adélie land, Kerguelen	<a href="mailto:celine.lebohec@iphc.cnrs.fr">celine.lebohec@iphc.cnrs.fr</a>	<a href="http://www.iphc.cnrs.fr/">http://www.iphc.cnrs.fr/</a>
<b>ECONERGIE</b> (IPEV Prog 119)	<b>ROBIN Jean Patrice</b>	IPHC-DEPE, CNRS, 23 rue Becquerel, 67087 Strasbourg Cedex, France	<b>Ashore living strategies of penguins: physiological mechanisms and evolutionary trade-offs.</b> 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 ( <i>Aptenodytes patagonicus</i> ) 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.	Crozet	<a href="mailto:jean-patrice.robin@iphc.cnrs.fr">jean-patrice.robin@iphc.cnrs.fr</a>	<a href="http://www.iphc.cnrs.fr/">http://www.iphc.cnrs.fr/</a>

<p><b>PHYSIO-ENERGY</b> (IPEV Prog 131)</p>	<p><b>ROUSSEL Damien</b></p>	<p>UMR 5023 - LEHNA, Bâtiment, R Dubois, Université Claude Bernard Lyon 1- 69622 Villeurbanne Cedex, France</p>	<p><b>Energetic challenges in penguins: Physiological, Bioenergetics and Molecular Adjustments.</b>Our research program PHISIONERGY is devoted to the study of the physiological, bioenergetics and molecularadjustments that sub-Antarctic and Antarctic penguin chicks and juveniles (Aptenodytes patagonicus and Pygoscelis adeliae) develop to overcome energetic challenges imposed by their ashore and sea living stages. These challenges are characterized by short growth period in cold environment, long-term fast during winter or moulting, the passage from shore to marine life to reach nutritional emancipation, the production of visual cues as an indicator to partners of individuals "quality" on vital aspects of organismic function. Penguin is an extraordinary model to study on the same specie several bioenergetics trade-off between expansive energy consuming processes (endurance, thermoregulation, protein synthesis, ornamental colors) and limited environmental resources (oxygen during dives, nutriment while fasting during winter or molt,carotenoids).</p>	<p>Crozet</p>	<p><a href="mailto:damien.rousseau@univ-lyon1.fr">damien.rousseau@univ-lyon1.fr</a></p>	<p><a href="http://umr5023.univ-lyon1.fr/">http://umr5023.univ-lyon1.fr/</a></p>
<p><b>SUBANTECO</b> (IPEV Prog 136)</p>	<p><b>RENAULT David</b></p>	<p>Université de Rennes 1 UMR CNRS 6553 Ecobio 263 Avenue du Gal Leclerc CS 74205 35042 Rennes Cedex</p>	<p><b>Subantarctic biodiversity, effects of climate change and biological invasions on terrestrial biota.</b> Within the latitudinal belt 45-54°S, the Southern Ocean contains a number of dots of land, almost all of which are volcanic in origin. These subantarctic islands are remote, and host low plant and invertebrate diversities. These fascinating islands are characterized by impoverished terrestrial ecosystems with highly reduced or absent functional redundancy. In Ipev 136 program, we study the terrestrial biodiversity (fauna and flora) in the French subantarctic islands and the environmental factors shaping the geographical repartition of the species. The dispersal-related trade-offs in invertebrate species and the cost-driven trade-off between reproduction and dispersion in invertebrate species are considered. In addition, we address the interactions between alien and native species and study the effects of climate change on the original subantarctic biotas.</p>	<p>Crozet, Kerguelen Islands</p>	<p><a href="mailto:david.renault@univ-rennes1.fr">david.renault@univ-rennes1.fr</a></p>	<p><a href="http://ecobio.univ-rennes1.fr">http://ecobio.univ-rennes1.fr</a></p>

<p><b>POPCHAT</b> (IPEV Prog 279)</p>	<p><b>PONTIER Dominique</b></p>	<p>UMR CNRS 5558 - LBBE, "Biométrie et Biologie évolutive", UCB Lyon 1 - Bât. Grégor Mendel, 43 bd du 11 novembre 1918, 69622 VILLEURBANNE cedex, France</p>	<p>The aim of the project is to better understand the role played by introduced cats in the ecosystem of the main island of the subantarctic Kerguelen archipelago, called Grande Terre, and to bring new knowledge on the role of some aspects of prey and introduced predator behaviour in trophic relationships on subantarctic islands. The first part investigates biotic (rabbits, birds) and abiotic (climatic conditions, specifically temperature, precipitation, wind speed) factors ruling cat population dynamics and the synchronous variations in cat abundance observed among distant study sites. Several hypotheses explaining this synchrony pattern are examined. They require studying the spatial structuring of cat populations from the study of the spatial genetic variability of these populations. The second part explores more specifically predator-prey interactions, and in particular prey selection by cats and the risk perceived by rabbits in relationship with habitat characteristics in terms of prey richness and temporal prey availability. This should allow determining which seabird species are most heavily impacted by cat predation. The last part of the program aims to develop a model of cat population dynamics based on gained information on the factors and mechanistic links governing predator-prey interactions in order to predict cat numbers. This model will be designed to take into account the predicted climate change and should help to investigate environmental changes at Kerguelen. It should also be useful when defining cat control protocols in some sensitive areas situated on subantarctic islands.</p>	<p>Kerguelen</p>	<p><a href="mailto:Dominique.Pontier@univ-lyon1.fr">Dominique.Pontier@univ-lyon1.fr</a></p>	<p><a href="http://lbbe.univ-lyon1.fr">http://lbbe.univ-lyon1.fr</a></p>
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<p><b>ETHOTAAF</b> (IPEV Prog 354)</p>	<p><b>BONADONNA Francesco</b></p>	<p>CEFE-CNRS-UMR 5175, Centre d'Ecologie Fonctionnelle et Evolutive, 1919 route de Mende, 34293 Montpellier Cedex 05, France</p>	<p>Since ever humans observed animals because their lives depended on knowledge of animal behaviour. Today knowledge on behaviour of protected species may enable conservationists to design adequate actions, reducing significantly involuntarily threats to a given species, or waste of time and money, with not completely under control conservation programs. Our project ETHOTAAF aims at studying those cues and clues coming from the surrounding environment influencing seabirds behaviour. We will consider both signals coming from other individuals, influencing pair formation in the sexual selection framework, and cues coming from the inanimate environment which birds need to use in navigational tasks. We will study essentially burrowing petrels and king penguins, tackling different senses (olfaction, hearing, sight) alone, step by step, or in synergy. The originality of our approach is that the sensorial modalities involved in the perception of the external cues are often the same and that the study of one framework (e.g. navigation) suggests the original solutions adopted by individuals in the other framework (e.g. sexual selection) and vice versa.</p>	<p>Kerguelen, Crozet</p>	<p><a href="mailto:francesco.bonadonna@cefe.cnrs.fr">francesco.bonadonna@cefe.cnrs.fr</a></p>	<p><a href="http://www.cefe.cnrs.fr/">http://www.cefe.cnrs.fr/</a></p>
<p><b>OISEAUX PLONGEURS</b> (IPEV Prog 394)</p>	<p><b>BOST Charles André</b></p>	<p>Centre d'études biologiques de Chizé-CEBC CNRS - Centre d'Etudes Biologiques de Chizé 79360 Villiers-en-Bois France</p>	<p>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-disciplinary 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.</p>	<p>Kerguelen</p>	<p><a href="mailto:bost@cebc.cnrs.fr">bost@cebc.cnrs.fr</a></p>	<p><a href="http://www.cebc.cnrs.fr">http://www.cebc.cnrs.fr</a></p>

<p><b>HEnergES</b> (IPEV Prog 1037)</p>	<p><b>GILBERT Caroline</b></p>	<p>Ethologie-Physiologie, Bâtiment Blin ; EnvA - Ecole nationale Vétérinaire d'Alfort 7 avenue du Général de Gaulle 94704 ;Maisons- Alfort cedex ; France</p>	<p>Southern elephant seals (<i>Mirounga leonina</i>) 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.</p>	<p>Kerguelen</p>	<p><a href="mailto:cgilbert@vet-alfort.fr">cgilbert@vet-alfort.fr</a></p>	
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I'AMMER (IPEV prog 109	ROPERT-COUDERT Yan	Centre d'Etudes Biologiques de Chizé, Station d'Ecologie de Chizé-La Rochelle, CNRS UMR 7372, 79360 Villiers en Bois - France	This program proposal proceeds from the recent international efforts towards long-term monitoring of 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). 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. In parallel, a monitoring of the on-land breeding activities (adults and chicks) will be conducted. A series of experiments will also be performed in order to test the hypotheses that emerge from the data collected in the Observatory phase.	Adélie Land	<a href="mailto:yan.ropert-coudert@cebc.cnrs.fr">yan.ropert-coudert@cebc.cnrs.fr</a>	<a href="http://www.cebc.cnrs.fr">http://www.cebc.cnrs.fr</a>
RENKER (IPEV prog 108	LOISON Anne	Alpine Ecology Laboratory (LECA) Université de Savoie F-73376 LE BOURGET DU LAC Cedex	Our project aims to assess ecosystem effects of reindeer on Kerguelen in order to evaluate different management policies. We will 1) estimate the distribution and habitat use of reindeer on Ile Kerguelen using a combination of faeces counts and helicopter transects, 2) collect simple demographic indices such as calves/females ratio and age of carcasses to compare this predator-free population to e.g. South Georgia, 3) assess if these indices can be validated using marked individuals, 4) estimate plant composition and biomass and relate it to reindeer habitat use and presence of other herbivores using an approach developed in subarctic-alpine ecosystems, 5) establish exclosures in different habitats to assess short-term responses of vegetation to reindeer grazing.		<a href="mailto:anne.loison@univ-savoie.fr">anne.loison@univ-savoie.fr</a>	<a href="http://www.leca.univ-savoie.fr/tmp/">http://www.leca.univ-savoie.fr/tmp/</a>

POLARIS (IPEV prog 110)	<b>HOURDEZ Stéphane</b>	Station de Biologie marine de Roscoff, Place Georges Teissier 29680 ROSCOFF , FRANCE	<p><u>Adaptive polymorphism, climate warning, and resilience of Antarctic annelid species.</u> 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 Antarctic 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.</p>	Adélie Land	<a href="mailto:hourdez@sb-roscoff.fr">hourdez@sb-roscoff.fr</a>	<a href="http://mission-polaris.over-blog.com">http://mission-polaris.over-blog.com</a>
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<p><b>PROTEKER</b> (IPEV prog 1044)</p>	<p><b>SAUCEDE Thomas</b> <b>AMEZIANE Nadia</b></p>	<p>Biogéosciences, UMR-CNRS 6282, Université de Bourgogne, 6 bd Gabriel 21000 Dijon, France. Muséum National d'Histoire Naturelle BP 225 29182 Concarneau Cedex, France.</p>	<p>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.</p>	<p>Kerguelen</p>	<p><a href="mailto:thomas.saucede@u-bourgogne.fr">thomas.saucede@u-bourgogne.fr</a></p>	<p><a href="http://www.proteker.net">http://www.proteker.net</a></p>
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<p><b>REVOLTA</b> (IPEV Prog 11)</p>	<p><b>ELEAUME Marc</b> <b>GALLUT Cyril</b></p>	<p>Unité Biologie des organismes et écosystèmes aquatiques (BOREA, UMR 7208), Sorbonne Universités, Muséum national d'Histoire naturelle, Université Pierre et Marie Curie, Université de Caen Basse-Normandie, CNRS, IRD; CP26, 57 rue Cuvier 75005 Paris, FRANCE. ISYEB (Institut de Systématique, Evolution, Biodiversité, UMR 7205 CNRS-MNHN-UPMC-EPHE, Muséum national d'Histoire naturelle, Département Systématique et Evolution, CP39, Muséum National d'Histoire Naturelle, 57 rue Cuvier 75231 PARIS cedex 05, FRANCE</p>	<p><b>Ecological Ressources and valorisation using an Long Term Observatory in Terre Adélie. Radiations EVOLutives marines en Terre Adélie.</b>The Southern Ocean has a major influence on the ocean dynamics and climate worldwide. The Southern Ocean is characterised by its unique macrofauna dominated by abundant, diversified filtering organisms. Endemicity is very high due to the shelf isolation, circum-antarctic surface currents and thick ice coverage which onsets must have occurred some 40 mya. Recent past repeated ice advances and retreats promoted rapid speciations in some benthic groups, along with morphological adaptations. Some groups, like the poikilotherm, not iso-osmotic to seawater teleosts, developed in Antarctica physiological adaptations like antifreeze glycoproteins in their blood and gut. Climatic changes in Antarctica will likely have a strong effect of the climate worldwide because of the regulatory role of the Southern Ocean. But it will surely have a role in benthic faunal changes because many species are presently stenotherm. For the moment Eastern antarctica is poorly affected by climate change and human activities. Biodiversity is exceptionnally high there comparing with arctic benthic fauna and the faunal assemblages described to date make this area a really unique patchwork of ecosystems. This area is therefore appropriate to establish a spot of reference to measure the biotic and abiotic parameters on the long run, which will allow to measure the structure and variability of an ecosystem in « normal » situations. The data that will be obtained will be of great importance for managing protected marine areas.</p>	<p>Terre Adélie Dumont d'Urville</p>	<p><a href="mailto:eleaume@mnhn.fr">eleaume@mnhn.fr</a> <a href="mailto:gallut@mnhn.fr">gallut@mnhn.fr</a></p>	<p><a href="http://borea.mnhn.fr/">http://borea.mnhn.fr/</a></p>
<p><b>IMMUNOTOXKER</b> (IPEV Prog 409)</p>	<p><b>BETOULLE</b> <b>Stephane</b></p>	<p>UMR-I 02 INERIS-URCA-ULH SEBIO Unité Stress Environnementaux et BIOSurveillance des milieux aquatiques UFR Sciences Exactes et Naturelles, Campus du Moulin de la Housse, BP 1039 51687 REIMS cedex 2, France</p>	<p>Subantarctic hydrosystems of kerguelen Islands constitute a natural field laboratory to study the eco-toxicological effets related to global change. In this context, our objective is : to better understand the sensitivity of model species (mytilidae/salmonidae), and thus their vulnerability to targeted stressors by an approach combining observation and experimentation; to provide to the scientific community and environmental managers a toolkit for assessing biological effects on marine and freshwater life of the combined action of the main anthropogenic stressors of aquatic environments, pollution and climatic changes. The project will focus on the continuum freshwater to marine environment.</p>	<p>Kerguelen</p>	<p><a href="mailto:stephane.betouille@univ-reims.fr">stephane.betouille@univ-reims.fr</a></p>	<p><a href="http://www.univ-reims.fr">http://www.univ-reims.fr</a></p>

<p><b>ICO<sup>2</sup>TAKS</b> (IPEV Prog 11)</p>	<p><b>KOUBBI Philippe</b></p>	<p>Unité Biologie des organismes et écosystèmes aquatiques (BOREA, UMR 7208), Sorbonne Universités, Muséum national d'Histoire naturelle, Université Pierre et Marie Curie, Université de Caen Basse-Normandie, CNRS, IRD; CP26, 57 rue Cuvier 75005 Paris, France.</p>	<p>Integrated Costal Ocean Observations in Terre Adélie, Kerguelen and other sectors of the Southern Ocean. This project gathers spatial and long-term information on the composition of marine biota in various sectors of the Southern Ocean through a multidisciplinary effort. The main aims will be to complete the pelagicecoregionalisation of these areas, to study the pelagic trophic food web and to determine which indicators should be monitored to assess changes in relation to environmental forcing. The Indian part of the Southern Ocean is studied, specially the D'Urville Sea in East Antarctica and the Kerguelen coastal zone. Three French laboratories are involved, BOREA (Paris), LOV (Villefranche sur mer) and LOG (Wimereux) in cooperation with different international teams.</p>	<p>Adélie Land</p>	<p><a href="mailto:philippe.koubbi@upmc.fr">philippe.koubbi@upmc.fr</a></p>	<p><a href="http://borea.mnhn.fr">http://borea.mnhn.fr</a>, <a href="http://www.lov.obs-vlfr.fr">http://www.lov.obs-vlfr.fr</a>, <a href="http://log.univ-littoral.fr">http://log.univ-littoral.fr</a></p>
<p><b>MDCPR</b></p>	<p><b>KOUBBI Philippe</b></p>	<p>Unité Biologie des organismes et écosystèmes aquatiques (BOREA, UMR 7208), Sorbonne Universités, Muséum national d'Histoire naturelle, Université Pierre et Marie Curie, Université de Caen Basse-Normandie, CNRS, IRD; CP26, 57 rue Cuvier 75005 Paris, France.</p>	<p>The Continuous Plankton Recorder (CPR) has been used in the Southern Ocean for many years under the umbrella of the SO-CPR programme of SCAR (Scientific Committee on Antarctic Research). This project spatially covered most of the Indian part of the Southern Ocean except the area between Crozet and Kerguelen where operates the R/V « Marion Dufresne ». However, this area is essential to integrate in this project due to its hydrological characteristics because of the joining of subtropical and subantarctic fronts and the proximity of the Northern branch of the Antarctic Polar Front. Also, near Crozet, the influence of the Agulhas Front is important at the North of the subantarctic zone. Since 2013, we carry out a yearly survey to study the zooplankton distribution during the journey of the R/V « Marion Dufresne » around the French subantarctic islands. These studies will allow to model plankton communities and to study the consequences of the modifications of frontal zones on them.</p>	<p>Kerguelen</p>	<p><a href="mailto:philippe.koubbi@upmc.fr">philippe.koubbi@upmc.fr</a></p>	<p><a href="http://borea.mnhn.fr">http://borea.mnhn.fr</a></p>

<b>ZATA, Lter France</b> (INEE CNRS)	<b>LEBOUVIER Marc,</b> <b>ROPERT-COUDERT</b> <b>Yan</b>	<b>Université de Rennes 1</b> UMR CNRS 6553 Ecobio, OSUR Station Biologique 35380 Paimpont, France <b>Centre d'Etudes</b> <b>Biologiques de Chizé,</b> Station d'Ecologie de Chizé-La Rochelle, CNRS UMR 7372, 79360 Villiers en Bois - France	In the French Southern and Antarctic Territories, the LTER ZATA ( <i>Zone Atelier Antarctique et Subantarctique</i> ) 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 15 programs funded by the French Polar Institute IPEV.	Crozet, Kerguelen, Amsterdam, Adélie Land	<a href="mailto:marc.lebouvier@univ-rennes1.fr">marc.lebouvier@univ-rennes1.fr</a> , <a href="mailto:yan.ropert-coudert@cebc.cnrs.fr">yan.ropert-coudert@cebc.cnrs.fr</a>	<a href="http://za-antarctique.univ-rennes1.fr/">http://za-antarctique.univ-rennes1.fr/</a>
<b>Geosciences programs</b>						
<b>SISMOLOGIE/OBS</b> (IPEV prog 133)	<b>ALESSIA Maggi</b>	Ecole et Observatoire des sciences de la terre. EOOST, 5 rue René Descartes, 67084 STRASBOURG Cedex, France	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, to seismicity 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	<a href="mailto:alessia.maggi@unistra.fr">alessia.maggi@unistra.fr</a>	<a href="http://eost.unistra.fr/">http://eost.unistra.fr/</a>

<b>GEOMAGNETISME</b> (IPEV Prog 139)	<b>CHAMBODUT Aude</b>	Ecole et Observatoire des sciences de la terre. EOSt, 5 rue René Descartes, 67084 STRASBOURG Cedex, France	The permanent magnetic observatories of Amsterdam, Crozet, Dumont D'Urville, Concordia/DomeC and Kerguelen are fulfilling the intermagnet (INTERNational Real-time MAGnetic observatory NETwork) standards. In these observatories, the Earth's magnetic field is continuously recorded with sampling rates of 1s. Absolute measurements of the magnetic field components are also performed regularly (every day) throughout the year. The data processing and dissemination, to the World Data centers (W.D.C. for geomagnetism) across the intermagnet network, are quasi realtime thanks to the recent acquisition system integrating daily shipment protocols.	Crozet, Kerguelen, Amsterdam - St Paul	<a href="mailto:aude.chambodut@unistra.fr">aude.chambodut@unistra.fr</a>	<a href="http://eost.unistra.fr/">http://eost.unistra.fr/</a>
<b>MAGNETISME/OBS</b> (IPEV prog 905)	<b>CHAMBODUT Aude</b>	Ecole et Observatoire des sciences de la terre. EOSt, 5 rue René Descartes, 67084 STRASBOURG Cedex, France	The present scientific project aims firstly and mainly at maintaining the permanent magnetic observatory of Dome C. The observatory (instruments, various systems as : acquisition, visualisation, back-up, quasi-real-time transmission and dedicated human observer) allows to perform measurements at one second sampling rate and absolute measurements of the three components of the Earth's magnetic field. The maintenance of facilities, processing and scientific valorization of the data is done in collaboration with Istituto Nazionale di Geofisica e Vulcanologia (INGV), Rome. The observatory already follows INTERMAGNET's recommendations (INTERNational Real-time MAGnetic observatory NETwork). An application was filled late 2010 in order, for this observatory, to become an IMO (INTERMAGNET Magnetic Observatory) in the fullest sense. The collected data will be disseminated to the WDCs (World Data Centers) in order to be easily accessible to the whole scientific community.	Concordia	<a href="mailto:aude.chambodut@unistra.fr">aude.chambodut@unistra.fr</a>	<a href="http://eost.unistra.fr">http://eost.unistra.fr</a>
<b>SISMOCONCORDIA</b> (Prog IPEV 906)	<b>LEVEQUE Jean Jacques</b>	CNRS-UMR7516 & UMS830 ; Ecole et Observatoire des Sciences de la Terre, EOSt, 5 rue René Descartes, 67084 STRASBOURG Cedex, France	The program has two main goals: the maintenance and operation of the Concordia seismic station, and the deployment of a seismometer array on the Antarctic plateau. The observatory-quality station, CCD, one of only two in the interior of the continent, contributes strongly to studies of earthquake sources and Earth structure. The seismometer array permits the observation of low-energy seismic waves.	Concordia	<a href="mailto:jjleveque@unistra.fr">jjleveque@unistra.fr</a>	

TALISKER (IPEV 1077)	<b>GUILLAUME Damien</b>	0 ;Strasbourg Cedex ; FRANCE	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@get.obs-mip.fr	<a href="http://www.get.obs-mip.fr/">http://www.get.obs-mip.fr/</a>
PALAS (IPEV Prog 1094)	<b>SABATIER Pierre</b>	EDYTEM Environnements, DYnamiques et TERRitoires de la Montagne Université de Savoie Laboratoire EDYTEM - UMR5204 Bâtiment « Pôle Montagne » F-73376 LE BOURGET DU LAC Cedex	This project is a joint proposal of EDYTEM (CNRS, université de Savoie) and the Department of Earth science, University of Bergen. The objective of this project is to perform at least Holocene-long sediment cores from <b>Kerguelen lakes</b> in order to do high resolution continuous reconstructing of past climate fluctuations with sedimentological and geochemical proxies. The proposal is connected to an ongoing project at University of Bergen where similar sites in Northern Hemisphere and in the Southern Atlantic Ocean are investigated. In this proposal focused on Kerguelen Archipelago, two complementary approaches will be applied: i) in Lake Armor, a lake with no glacier in its catchment area, erosion fluxes will be used to reconstruct past precipitation patterns; ii) in lakes with a glacier in their catchment area (Lake Guynemer area and Lake Aphrodite area), erosion fluxes will be used to reconstruct past glacier fluctuations. In a second time, this two records will be associated to reconstruct the past shift or changes in intensity of the Southern Westerly Wind. Finally, those approaches will be completed by Holocene sea-salt aerosols reconstructions from element geochemistry.	Kerguelen	pierre.sabatier@univ-savoie.fr	<a href="http://edytem.univ-savoie.fr">http://edytem.univ-savoie.fr</a>
GRAVITE (IPEV prog 337)	<b>ROGISTER Yves</b>	Institut de Physique du Globe de Strasbourg - Université de Strasbourg, IPGS-EOST, 5 rue René Descartes, 67084 STRASBOURG Cedex, France	Absolute gravity measurements are necessary to build models of the geoid. Repeat measurements are complementary to precise positioning measurements in providing tools to constrain both the ice-mass variations over the polar regions and the post-glacial rebound. We propose to initiate or repeat absolute gravity observations in the polar regions. In Antarctica, measurements will be performed at the O'Higgins, Palmer and Rothera Stations in the Antarctic Peninsula and at the McMurdo Station, Scott Base, Mario Zucchelli Station in the Ross Sea Embayment and Dumont d'Urville Station in Terre Adelie, in 2015.	Dumont D'Urville, AWIPEV - Ny Alesund	yves.rogister@unistra.fr	<a href="http://eost.unistra.fr">http://eost.unistra.fr</a>

NIVMER (IPEV Prog 688)	TESTUT Laurent	Laboratoire d'Etudes en Géophysique et Océanographie Spatiales - LEGOS/CNES, Université de Toulouse 3, 18, av. Edouard Belin, 31401 Toulouse cédex 9, France	The NIVMER program of the ROSAME tide gauge network - <a href="http://www.legos.obs-mip.fr/en/observations/rosame/">http://www.legos.obs-mip.fr/en/observations/rosame/</a> - 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 warning 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	<a href="mailto:laurent.testut@legos.obs-mip.fr">laurent.testut@legos.obs-mip.fr</a>	<a href="http://www.legos.obs-mip.fr">http://www.legos.obs-mip.fr</a>
<b>Physical sciences programs</b>						
GLACIOLOGIE (IPEV Prog 902)	RITZ Catherine	Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France	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	<a href="mailto:catherine.ritz@lgge.obs-ujf-grenoble.fr">catherine.ritz@lgge.obs-ujf-grenoble.fr</a>	<a href="http://lgge.osug.fr/">http://lgge.osug.fr/</a>
GLACIOCLIM-SAMBA (IPEV Prog 411)	FAVIER Vincent	Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France	This is the Antarctic component of the CLACIOCLIM ORE:SO, to detect, monitor and understand climate and mass balance variability and change in the glacial environment. The program maintains a surface mass balance network at Cap Prud'homme (CP, summer and winter surveys), along a 150 km transept (1 survey/year), and at Concordia (1 survey /year or more). Meteorological instruments are also be deployed near CP and special meteorological and glaciological observing periods are organized.	Terre adélie Concordia	<a href="mailto:favier@lgge.obs-ujf-grenoble.fr">favier@lgge.obs-ujf-grenoble.fr</a>	<a href="http://www-lgge.ujf-grenoble.fr/ServiceObs/contexte.htm">http://www-lgge.ujf-grenoble.fr/ServiceObs/contexte.htm</a>

<p><b>GLACIOCLIM-KESAACO</b> (IPEV Prog 1048)</p>	<p><b>FAVIER Vincent</b></p>	<p>Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France</p>	<p>This proposal is the exploratory step for Kerguelen component of the GLACIOCLIM Observatory. GLACIOCLIM is a French observatory to globally detect, monitor and understand climate and mass balance variability in the glacial environment. In the Kerguelen archipelago (49°S, 69°E, with an ice covered area of 552km<sup>2</sup> in 2001), there have been few short term glaciological studies on Ampere Glacier (main glacier of Cook icecap). Paleoclimatic reconstructions over the holocene and long term data from oceanographic and meteorological observatories are also available to get information on the climatic variability during the last 50 years. However, even though these data are essential, a study of the climate-glacier relationship is still necessary to describe the main factors that induced the current dramatic retreat of the Cook icecap. Studying Kerguelen ice caps has become urgent, but is also logistically feasible. The current project plans to deploy and maintain a surface mass balance network, and meteorological instruments on and around the glacier according to GLACIOCLIM protocols. Topographic and hydrological measurements are also planned in order to get data for independent computation of the mass balance. Finally, we will go a step further in the description of the past glacier fluctuation history by dating moraines with a new lichenometric approach.</p>	<p>Kerguelen</p>	<p><a href="mailto:favier@lgge.obs.ujf-grenoble.fr">favier@lgge.obs.ujf-grenoble.fr</a></p>	<p><a href="http://www-lgge.ujf-grenoble.fr/ServiceObs/contexte.htm">http://www-lgge.ujf-grenoble.fr/ServiceObs/contexte.htm</a></p>
<p><b>DACOTA</b> (IPEV prog 105)</p>	<p><b>LEMEUR Emmanuel</b></p>	<p>Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France</p>	<p>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 environment. Results obtained over the test zone (reasonable 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.</p>	<p>Terre Adélie</p>	<p><a href="mailto:Emmanuel.Lemur@lgge.obs.ujf-grenoble.fr">Emmanuel.Lemur@lgge.obs.ujf-grenoble.fr</a></p>	<p><a href="http://lgge.osug.fr/">http://lgge.osug.fr/</a></p>

<b>CALVA</b> (IPEV prog 1013)	<b>GENTHON Christophe</b>	Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France	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	<a href="mailto:Christophe.Genthon@lgge.obs.ujf-grenoble.fr">Christophe.Genthon@lgge.obs.ujf-grenoble.fr</a>	<a href="http://lgge.osug.fr/">http://lgge.osug.fr/</a>
<b>SUNITE DC</b> (IPEV prog 1014)	<b>SAVARINO Joël</b>	Laboratoire de Glaciologie et Géophysique de l'Environnement, Chimie atmosphérique, Neige, Glace (CHANG), 54 rue Molière, BP 96, 38402 St Martin d'Hères, France	For this renewal, the SUNITE DC will follow the same scientific objectives fixed during the previous program, i.e. document and use of the sulfate and nitrate stable isotopes in the context of an anticipated ozone hole recovering to put new constrains on the sources, transformations and transports of these species into polar regions where there are archived in ice for hundred thousand of years. However, the methodologies and approaches will evolve toward monitoring activities instead of intensive summer campaigns. The scientific activities will concentrate on the monitoring of the aerosol and surface snow isotope composition year-round with the double objectives of allowing the comparison of long isotope series with the recovering and dynamic of the stratospheric ozone and to secure continuous monitoring in case a major event will occur (e.g. major volcanic eruption, solar proton event, major ENSO etc.) .	Concordia, Cap Prudhomme	<a href="mailto:jsavarino@lgge.obs.ujf-grenoble.fr">jsavarino@lgge.obs.ujf-grenoble.fr</a>	<a href="http://lgge.osug.fr/">http://lgge.osug.fr/</a>

<p><b>NDACC-Antarctica</b> (IPEV prog 209)</p>	<p><b>JUMELET Julien</b></p>	<p>Latmos, Tour 45, couloir 45-46, 3e et 4e étages, Boite 102, Université Pierre et Marie Curie, 4 Place Jussieu, 75252 Paris Cedex 05, France</p>	<p>Program 209 « NDACC-Antarctica » is the Antarctic (and sub-Antarctic) component of the NDACC-France Observing Service, which is the French contribution to the international NDACC (Network for Detection of Atmospheric Composition Changes). This network aims to the monitoring of Upper Troposphere-Low Stratosphere (UTLS) chemical composition, in order to detect trends and variability, as well as climatic interactions. NDACC contributes to feed decision processes in the frame of the Montréal Protocol. The objectives of the « NDACC Antarctica » 209 program are divided into two main axes: 1. Long-term monitoring of the Antarctic UTLS in the frame of the Observing Service NDACC-France; 2. Process studies required to understand the ongoing mechanisms. For the 2011-2015 period, this type of studies will concern the microphysics of condensed phases present in the UTLS and the polar air mass dynamics to improve global modelling of the ozone-climate interactions. The program is implemented on three sites: Dumont d'Urville (main site), Kerguelen and Concordia.</p>	<p>Concordia, Terre Adélie, Kerguelen</p>	<p><a href="mailto:Julien.Jumelet@latmos.ipsl.fr">Julien.Jumelet@latmos.ipsl.fr</a></p>	<p><a href="http://www.latmos.ipsl.fr/">http://www.latmos.ipsl.fr/</a></p>
<p><b>RAYCO</b> (IPEV prog 227)</p>	<p><b>KLEIN Karl Ludwig</b></p>	<p>LESIA, Observatoire de Paris, Section de Meudon, 5, place Jules Janssen, 92195 MEUDON Cedex, France</p>	<p>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).</p>	<p>Terre Adélie, Kerguelen</p>	<p><a href="mailto:ludwig.klein@obsrpm.fr">ludwig.klein@obsrpm.fr</a></p>	<p><a href="http://lesia.obsrpm.fr/">http://lesia.obsrpm.fr/</a></p>

<p><b>SUPERDARN KER</b> (IPEV prog 312)</p>	<p><b>MARCHAUDON Aurélie</b></p>	<p>IRAP (Institut de Recherche en Astrophysique et Planétologie) 9 avenue du Colonel Roche BP 44346 31028 TOULOUSE cedex 4</p>	<p>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-magnetosphere-ionosphere system, particularly its evolution with time.</p>	<p>Kerguelen</p>	<p><a href="mailto:aurelie.marchaudon@irapomp.eu">aurelie.marchaudon@irapomp.eu</a></p>	<p><a href="http://www.irapomp.eu/">http://www.irapomp.eu/</a>, <a href="http://www.irapomp.eu/observations/projets/projets/projet-isl/projet-superdarn">http://www.irapomp.eu/observations/projets/projets/projet-isl/projet-superdarn</a></p>
<p><b>CESOA/ORE</b> (IPEV prog 414)</p>	<p><b>LEGRAND Michel</b></p>	<p>Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France</p>	<p>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.</p>	<p>Terre Adélie, Amsterdam - St Paul, Concordia</p>	<p><a href="mailto:Michel.Legrand@lgge.obs.ujf-grenoble.fr">Michel.Legrand@lgge.obs.ujf-grenoble.fr</a></p>	<p><a href="http://lgge.osug.fr/">http://lgge.osug.fr/</a></p>
<p><b>CHIMIE ATMO DC</b> (IPEV prog 903)</p>	<p><b>LEGRAND Michel</b></p>	<p>Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France</p>	<p>The program 903 is aimed to characterize and understand the chemical composition and future evolution of the lower boundary layer on the high Antarctic plateau at Concordia Station. Long term monitoring of ozone and other acidic trace gases in proposed with focus on two specific axes: 1. Evolution of ozone ground level and, more generally, of the atmosphere oxidative capacity in response to future recovery of the stratospheric ozone. 2. Improve our actual understanding of the specific oxidative capacity of the high Antarctic plateau by the monitoring of acidic gases since some of them are linked to intense photochemical processes above and within the snowpack.</p>	<p>Concordia</p>	<p><a href="mailto:Michel.Legrand@lgge.obs.ujf-grenoble.fr">Michel.Legrand@lgge.obs.ujf-grenoble.fr</a></p>	<p><a href="http://lgge.osug.fr/">http://lgge.osug.fr/</a></p>

<b>AEROTRACE</b> (IPEV prog 415)	<b>SCIARE Jean</b>	Laboratoire des Sciences du Climat et de l'Environnement, LSCE-Orme, point courrier 129,CEA-Orme des Merisiers, 91191 GIF-SUR-YVETTE CEDEX, France	The main objective of this program is to better document the role of reactive (short-lived) atmospheric species (gases and aerosols) in the Austral Ocean. Long term observations of aerosol properties are performed at 3 monitoring stations (Amsterdam Island, Crozet Island, Cape Point) for that purpose in order to better document spatial and temporal variability of aerosol sources and better characterize their contribution to the radiative forcing of aerosols in the Austral Ocean.	Amsterdam - St Paul, Crozet	<a href="mailto:Jean.Sciare@lsce.ipsl.fr">Jean.Sciare@lsce.ipsl.fr</a>	<a href="http://www.lsce.ipsl.fr">http://www.lsce.ipsl.fr</a>
<b>RAMCES-AMS/ORE</b> (IPEV prog 416)	<b>DELMOTTE Marc</b>	Laboratoire des Sciences du Climat et de l'Environnement, LSCE-Orme, point courrier 129,CEA-Orme des Merisiers, 91191 GIF-SUR-YVETTE CEDEX, France	The objective of the RAMCES-AMS program is the long term monitoring of greenhouse gases (CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, SF <sub>6</sub> ). To properly characterize the air masses we are also performing continuous measurements of Radon-222 and meteorological parameters, and weekly air sample to analyze CO, H <sub>2</sub> and CO <sub>2</sub> isotopes. The atmospheric measurements performed at Amsterdam enables a quantification of the oceanic carbon sink, and the trace gases emissions from Southern Africa. During the 4 years project we will upgrade the Amsterdam observatory in order to integrate this station to the European Research Infrastructure ICOS.	Amsterdam - St Paul, Crozet	<a href="mailto:marc.delmotte@lsce.ipsl.fr">marc.delmotte@lsce.ipsl.fr</a>	<a href="https://icos-atc-demo.lsce.ipsl.fr/node/31">https://icos-atc-demo.lsce.ipsl.fr/node/31</a>
<b>PARAD</b> (Prog IPEV 1133)	<b>De VIEESCHOUWER Francois</b>	EcoLab - Laboratoire Ecologie Fonctionnelle et Environnement ; CNRS	Although peat bogs have been abundantly used to monitor past atmospheric pollution, less attention has been given to pre-anthropogenic signals, especially in the Southern Hemisphere. Yet they are important to 1/ better understand the different particle sources during the Holocene and beyond, and 2/ to tackle the linkage between atmospheric dust loads and climate change. The main objectives of PARAD are therefore: 1) to provide high-resolution continuous records of natural atmospheric dust using the elemental and isotopic signature of peat cores in Sub-Antarctic Islands, and 2) to assess the linkage between dust inputs and climate. Besides its main objectives, PARAD will bridge the gap between peat geochemists, paleoecologists and palaeoclimatologists (see the tight bond between PARAD and IPEV project PaLaTIO in the full project) and will feed three topics fitting well EcoLab and OMP topics: 1/ global change and adaptation of living organisms, 2/ land use and environmental changes (e.g. erosion), and 3/ human impact on biodiversity.	Amsterdam - St Paul	<a href="mailto:francois.devieeschouwer@ensat.fr">francois.devieeschouwer@ensat.fr</a>	

<p><b>HAMSTRAD</b> (IPEV prog</p>	<p><b>RICAUD Philippe</b></p>	<p>Laboratoire d'Aérodologie, CNRS - Université Toulouse 3 - O.M.P., 14 avenue Edouard Belin, 31400 -TOULOUSE, France</p>	<p>The instrument named HAMSTRAD (H2O Antarctica Microwave Stratospheric and Tropospheric Radiometers) has been automatically measuring in the microwave domain water vapour (183 GHz) and temperature (60 GHz) from 0 to 10 km above Dome C (Antarctica) since January 2010. The aim of the programme is the study of the long-term evolution of water vapour and temperature from the planetary boundary layer to the tropopause and its impact on climate change. In addition to the long-term trends, the diurnal cycles, the seasonal variabilities and some specific case studies are intended to be analyzed. The HAMSTRAD measurements will be compared to the space-borne measurements (IASI, AIRS), in-situ sensors along the 45-m high tower, daily radiosondes, ECMWF analyses/forecasts, and the Météo-France climate model outputs. Along with the polar process studies, the project will also participate to the validation of space-borne sensors, model outputs and ECMWF analyses/forecasts. ECMWF.</p>	<p>Concordia</p>	<p><a href="mailto:philippe.ricaud@aero.obs-mip.fr">philippe.ricaud@aero.obs-mip.fr</a></p>	<p><a href="http://www.aero.obs-mip.fr/">http://www.aero.obs-mip.fr/</a></p>
<p><b>PaLaTIO</b> (IPEV Prog 106</p>	<p><b>MICHEL Elisabeth</b></p>	<p>Laboratoire des Sciences du Climat et de l'Environnement/ IPSL, UMR 8212, F-91198 GIF- SUR-YVETTE CEDEX, FRANCE</p>	<p>In the Southern Ocean (SO) – a key player in global oceanic and atmospheric circulation - intermediate and bottom waters form, and wind driven upwelling connects the deeper ocean with the atmosphere. The centennial to millennial scale climate changes that occurred since the last glacial maximum (LGM) may have been the result of ocean circulation changes, with associated modification of ocean heat transport, and/or of rapid atmospheric circulation changes. We aim to document the climate history and circulation changes during the Last termination and the Holocene, along a latitudinal transect in the Indian Ocean sector of the SO. Well-dated terrestrial records from Iles Kerguelen and Ile Amsterdam will be combined with marine high resolution records from the south Indian Ocean. A precise time scale will be created for these multi-proxy records, using volcanic events and 14C dating in order to construct a common marine-terrestrial chronology. The integration of terrestrial multi-proxy records and marine records will result in qualitative as well as quantitative reconstructions of environmental and climatic parameters, such as temperature, precipitation and wind intensity, as well as oceanic and atmospheric circulation changes.</p>	<p>Amsterdam - St Paul, Kerguelen</p>	<p><a href="mailto:elisabeth.michel@lsce.ipsl.fr">elisabeth.michel@lsce.ipsl.fr</a></p>	<p><a href="http://www.lsce.ipsl.fr">http://www.lsce.ipsl.fr</a></p>

<b>MAKER</b> (IPEV prog 1061)	<b>PARK Young - Hyang</b>	Laboratoire d'Océanographie et du Climat (LOCEAN) MNHN, Université Pierre et Marie Curie, LOCEAN-IPSL Case 100, 4 place Jussieu, 75005 PARIS, France)	The Kerguelen Plateau is the largest near-meridional submarine plateau in the Southern Ocean (SO) and constitutes a major topographic barrier for the eastward flowing Antarctic Circumpolar Current (ACC). Under the changing climate of the earth, identification and monitoring of the changes in location and intensity of the ACC and associated MOC (meridional overturning circulation) are among the key objectives of the SO oceanographic community. Located close to the high eddy activity associated with the powerful Subantarctic Front north of the plateau and hugged east of the islands by a swift and narrow branch of the Polar Front (PF), the area east of the Kerguelen Islands provides with an ideal place to conduct systematic observations of the ACC and associated eddies. The main objectives of the present project are thus to 1) monitor the time and space variability of the vertical	Kerguelen - La Curieuse (vessel)	yhpark@mnhn.fr	<a href="https://www.locean-ipsl.upmc.fr">https://www.locean-ipsl.upmc.fr</a>
<b>SAWfPHY-Concordia</b> (IPEV prog 1098)	<b>HERTZOG Albert</b>	Laboratoire de Météorologie Dynamique - LMD (CNRS, Université Paris 6, IPSL, Ecole Normale Supérieure), 45, rue d'Ulm / 29, rue d'Ulm / 24 rue Lhomond, 75230 Paris cedex 05, France	The SAWfPHY-Concordia project is aimed at making new measurements of atmospheric moisture at the Concordia polar station during winter. These measurements will use the new surface acoustic wave SAWfPHY hygrometer, currently developed at LMD in the frame of the Stratéole Phase 2 balloon project. The observations collected at Concordia will serve on the one hand to validate the recent developments of the hygrometer in conditions close to those encountered in the stratosphere, and will be used on the other hand to characterize surface moisture on the Antarctic Plateau, as well as humidity gradient in the polar boundary layer.	Concordia	<a href="mailto:albert.hertzog@lmd.polytechnique.fr">albert.hertzog@lmd.polytechnique.fr</a>	<a href="http://www.lmd.jussieu.fr/">http://www.lmd.jussieu.fr/</a>
<b>GMOstral</b> (IPEV prog 10)	<b>DOMMERGUE Aurélien</b>	Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France	The GMOstral is initiated by a European project GMOS (Global Mercury Observation System), which aims at developing a coordinated global observation system for the global pollutant, atmospheric mercury (Hg). This will then provide 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 propose to implement three Hg monitoring stations in sub-Antarctic and Antarctic sites 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.	Terre Adélie, Amsterdam - St Paul, Concordia	<a href="mailto:Aurelien.Dommergue@lgge.obs.ujf-grenoble.fr">Aurelien.Dommergue@lgge.obs.ujf-grenoble.fr</a>	<a href="http://lgge.osug.fr/">http://lgge.osug.fr/</a>

<p><b>NIVOLOGIE</b> (IPEV Prog</p>	<p><b>PICARD Ghislain</b></p>	<p>Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France</p>	<p>The interactions between the snow on the surface and the atmosphere are very strong and are responsible for important feedback loops in the climate system, especially in snow-cover areas like in Antarctica. NIVO project aims to better quantify these interactions and improve their prediction by physically-based snow evolution models. For this, the project implements automated instruments and conducts manual measurements to monitor the evolution of snow physical properties at Concordia and Cap Prudhomme stations in East Antarctica. These observations related to thermal variables, the radiation balance or the surface state, will allow to better understand the evolution of the snowpack, to calibrate the observations acquired by satellites and validate snow evolution models to, in fine, suggest improvements.</p> <p>In the field, NIVO will deploy and calibrate new instruments developed in the framework of the ANR "MONItoring SNOW in a changing climate " (spectrum of snow optical properties, snow grain size profile, ...).</p>	<p>Concordia, Cap Prudhomme</p>	<p><a href="mailto:ghislain.picard@lgge.obs.uif-grenoble.fr">ghislain.picard@lgge.obs.uif-grenoble.fr</a></p>	<p><a href="http://lgge.osug.fr">http://lgge.osug.fr</a></p>
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<p><b>SUBGLACIOR</b> (IPEV Prog 1119)</p>	<p><b>CHAPPELLAZ Jérôme</b></p>	<p>Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, BP 96, 38402 St Martin d'Hères, France</p>	<p>"The IPEV SUBGLACIOR project makes the logistical counterpart of the following scientific projects already funded : (1) the European ERC Advanced grant project ICE&amp;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 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 effects -), 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.</p> <p>The IPEV SUBGLACIOR included two test campaigns in 2013/2014 and 2014/2015, to evaluate some technical choices currently envisaged for specific components of this probe. In 2015/2016, the full probe will be implemented at Concordia to measure the depth profile of water isotopes and greenhouse gas down to 3260 m of depth.</p>	<p>Concordia</p>	<p><a href="mailto:jerome@lgge.obs.ujf-grenoble.fr">jerome@lgge.obs.ujf-grenoble.fr</a></p>	<p><a href="http://lgge.osug.fr">http://lgge.osug.fr</a></p>
<p><b>CHINSTRAP</b> (Prog IPEV 1112)</p>	<p><b>HUBERT Guillaume</b></p>	<p>ONERA DESP ; ONERA</p>	<p>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 Brazil near the South Atlantic Anomaly.</p> <p>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 analyzes to those from other measurement sites. The multi-sites measurements (CHINSTRAP and DAARES projects) aim to understand the impact of terrestrial magnetic singularities (SAA pole) on atmospheric neutron spectrum dynamics.</p>	<p>Concordia</p>	<p><a href="mailto:guillaume.hubert@onera.fr">guillaume.hubert@onera.fr</a></p>	<p><a href="http://www.onera.fr/desp">www.onera.fr/desp</a></p>

<b>CAMISTIC</b> (Prog IPEV 10)	<b>DURAND Gilles</b>	Direction des Sciences de la Matière - Département d'Astrophysique, de Physique, DSM-DAPNIA-SAP CEA Saclay 91191 ;Gif sur Yvette cedex ; France	Camistic is a Sub-millimetre / Thz camera with goal of site testing at Concordia by measuring the transmission and stability of the atmosphere. This camera placed on the 0.8m telescope IRAIT will explore the Thz domain in preparation of sub-millimetre astronomy experiments with larger telescopes at dome C. Astronomy goals are the study of star formation and the early stages of the universe. The program includes both the site testing, the characterization of the polar constraints and the build up of a camera that withstands these conditions.	Concordia	<a href="mailto:durandgs@cea.fr">durandgs@cea.fr</a>	
<b>PAIX&amp;EXPLORER</b> (Prog IPEV 1096)	<b>CHADID Merième</b>	Laboratoire Lagrange ; CNAP, Centre National d'Astronomes & Physiciens	Our proposal aims are focussed on: 1) to modify the current PAIX photometer status from Astro-Concordia program (Site characterization) to a new and purely astrophysical status. 2) to perform and install a new instrument, a high resolution spectrograph EXPLORER (Exoplanets, PulsatiOn high Resolution spectRoscopy). PAIX photometer takes benefit from the most striking Dome C properties where long and continuous time series observations are possible during 150 « days », allowing unprecedented frequency resolution which have been only attained by space mission such as CoRoT or Kepler. Several rank A publications have been issued thanks to PAIX. EXPLORER spectrograph is a new instrumental program which will also take benefit of continuous and uninterrupted observations linked to excellent transparency skies which can be found only at Dome C. EXPLORER allows us to collect long and uninterrupted spectroscopic data-bases are which until now has never been done even with space telescope. EXPLORER will complete and challenge the space mission GAIA. EXPLORER will make a major contribution in stellar pulsation and evolution in resolving some enigmas connected to Blazhko modulations, hydrodynamical and loss mass phenomena in evolved stars (pulsation period more than 100 days) which remains a great mystery, and to complement PAIX in studies of the pulsation mode detection of P-mode in red giant stars. EXPLORER will also complement the spectroscopic observation of the GAIA mission on the topic of determining the basic parameters and chemical abundances of stars with long pulsation period and galactic distances. EXPLORER will allow us as well to better characterize the transit detection	Concordia	<a href="mailto:chadid@unice.fr">chadid@unice.fr</a>	
<b>Human and social sciences</b>						

<p><b>SICKVEST</b> (IPEV prog 1117)</p>	<p><b>BESNARD Stéphane</b></p>	<p>UMR-S 1075 - Mobilités : Attention, Orientation et Chronobiologie (COMETE) Université de Caen Basse-Normandie, UFR de Médecine Campus, 5 Avenue de la côte de nacre, 14032 CAEN Cedex 5, France</p>	<p>Motion sickness is present in about 80% of the passengers during missions onboard the Astrolabe with sometimes a very significant risk of dehydration. Our unit specializes in the fundamental study of the vestibular system (inner ear), the sensory organ responsible of visual-vestibular conflict inducing this syndrome, and also provides medical support in parabolic flights (flight reproducing weightlessness) where this syndrome is also strongly present. Since the Astrolabe is a strong and reproducible stimulus triggering seasickness, we would like to characterize the strongest component of the elicitation of motion sickness (psychological component, types of boat movements) and to test 4 protocols of treatment of motion sickness with medical supervision (1 protocol per year), during turnaround missions of the Astrolabe. This work will be conducted in collaboration with the unit INSERM U 1075 (France) and the military research laboratory VIPER (Royal Military Academy, Belgium) specialized in extreme environments.</p>	<p>Astrolabe (Vessel)</p>	<p><a href="mailto:Besnard-s@phycog.org">Besnard-s@phycog.org</a></p>	<p><a href="http://www.comete-u1075.fr/fr/">http://www.comete-u1075.fr/fr/</a></p>
<p><b>TiCTaL</b> (Prog IPEV 1128)</p>	<p><b>VILLEMMAIN Aude</b></p>	<p>E.A. 4132 ; Cnam 41 rue Gay Lussac, 75005 PARIS</p>	<p>The way in which the personnel shift at the Dumont d'Urville base is conducted is critical for an effective and safe functioning of the base. This transition phase has several distinctive features as compared to other situations studied in ergonomics (e.g. hospital, industry). A major feature is that the turnover, which is performed under severe time constraints, is essentially formative. The program aims to understand the conditions for optimizing the personnel shift so that it allows the new personnel to learn and develop new skills during the transmission of experience of the past personnel.</p>	<p>Terre Adélie Dumont d'Urville</p>	<p><a href="mailto:aude.villemain@univ-reims.fr">aude.villemain@univ-reims.fr</a></p>	

<p><b>FOLLOW UP</b> (IPEV Prog 1113)</p>	<p><b>WAWRZYNIAK Michel</b></p>	<p>Université de Picardie, UFR sciences humaines, sociales et philosophie, Chemin du Thil 80025 AMIENS Cedex 1, France</p>	<p>The objective of the study is to refine the understanding of individual and collective psychological phenomena occurring during long duration polar missions, and reunion after the mission has ended.</p> <p>This psychological study consists in a longitudinal follow-up of winterover teams -working and living together in Adélie Land, at the scientific outpost of Dumont d'Urville- but also of their relatives: partners, children, or parents. These cohorts would be followed in parallel from the preparation of the mission before departure, and until after the homecoming period.</p> <p>Individual and group interviews as well as questionnaires would be used to explore the practices, representations and emotions of those individuals, who experience an unusual voluntary separation, a topic seldom studied in the polar context, as in most extreme environments.</p> <p>Beyond polar missions, such research could bear fruit in other contexts, including long-duration space missions and submarine patrols, which involve a similar remoteness from relatives and from the usual environment.</p>	<p>Terre Adélie Dumont d'Urville</p>	<p><a href="mailto:michel.wawrzyniak@u-picardie.fr">michel.wawrzyniak@u-picardie.fr</a></p>	<p><a href="https://www.u-picardie.fr/">https://www.u-picardie.fr/</a></p>
<p><b>ICE-Q</b> (IPEV Prog 1136)</p>	<p><b>NICOLAS Michel</b></p>	<p>UFR des Sciences et Techniques des Activités Physiques et Sportives (STAPS), CAMPUS MONTMUZARD, BP 27877, 21078 DIJON CEDEX, France</p>	<p>The aim of the program is to study social, occupational, environmental and psychological variables which are among the most important determinant in adaptation to Isolated and Confined Environments, the so-called ICEs.</p> <p>The evolution and the relationships between these variables will be investigated. Furthermore, in an interdisciplinary approach, we propose to analyze the relationships between psychological and medical data available in order to evaluate the relevance of the psychological measures.</p> <p>This program aims to gather data in order to construct standardized tools that will help evaluating individual and collective adaptation in ICEs which would facilitate both recruitment and follow-up of the implicated crews.</p>	<p>Terre Adélie, Amsterdam - St Paul, Crozet, Kerguelen</p>	<p><a href="mailto:Michel.Nicolas@u-bourgogne.fr">Michel.Nicolas@u-bourgogne.fr</a></p>	<p><a href="http://www.u-bourgogne.fr">http://www.u-bourgogne.fr</a></p>

\* Please include any scientific activities you believe might be considered bioprospecting (<http://www.scar.org/treaty/atcmxxxiii/> see WP2)