

international relations CONICYT

The Laster States

Gobierno de Chile

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alf of 2013 already passed by and this new the impact of institutional design in conflict resoluissue of our newsletter is the perfect oction in the Americas. casion to review the most relevant events We also signed valuable cooperation agreements of the last few months and reveal the activiwith the Columbia University and the University of ties we have planned for the rest of the year.

As we mentioned three months ago, our 2013 calls their faculty and students and Chilean researchers. have larger funds than ever to support our interna-Detailed information on this and much, much more tional cooperation initiatives, from smaller mobility may be found in the following pages. projects to large scale international research endeavors. We have always recognised a strong interest from We are also preparing a new brochure which will the scientific community in competitive calls supportgather CONICYT's international cooperation instruing international cooperation. The sheer number of ments open for application to Chilean and foreign applications we received this year confirm exactly individuals, research groups and institutions that we that. The Call for Proposals in Support for Internahope to be able to send to you very soon! tional Networking between Research Centres, for instance, received nearly three times more applications than last year! This confirms not only the interest for this kind of call but also the intense connections between researchers in Chile and their colleagues around the world.

In addition to our regular calls, we also added this year a special call with the International Development Research Center (IDRC) of Canada that was also well received by our researchers. We received 15 applications and, after careful evaluation, a project from the Universidad Diego Portales was finally selected to receive approximately \$200.000 Canadian dollars for the development of a one year research project on

The Department of International Relations welcomes all comments and suggestions from readers. Please email us at relacionesinternacionales@conicyt.cl

California, Berkeley. These universities will join MIT and Harvard in specific calls for cooperation between

> Department of International Relations CONICYT



Cover photo: ECOS-CONICYT project team led by Dr. José Berenguer at a prehistoric metallurgic site in Collahuasi, northern Chile.

news clips

CONICYT signs MoU with prestigious universities in the U.S.

ONICYT and the Under Secretary of Economy of the Min-✓ istry for the Economy, Development and Tourism of Chile signed on the 22nd of April a Memorandum of Understanding (MoU) with Columbia University in New York. Prior to this agreement the Under Secretary of Economy signed on the 18th of April an MoU with the University of California, Berkeley.

The signature of both agreements is part of CONICYT and the Under Secretary of Economy's strategy for establishing international alliances of excellence with prestigious foreign universities. The collaboration is set to include competitive calls to finance projects promoting dialogue and research networks between researchers in Chile and the above subscribing universities, as well as



long term research visits for post doctorate students from Chile to labs and research centres of Columbia University and the University of California, Berkeley. During his visit to Columbia University the President of CONI-CYT Dr. José Miguel Aguilera met Professor Jeffrey Sachs, Director of the Earth Institute, and Columbia University authorities and interested in pursuing joint proresearchers to discuss opportunities for joint-research and collaboration in different areas, inclu

Dr. José Miguel Aguilera, President of CONICYT (left). John Coatsworth, Provost of Columbia University and Tomás Flores Jaña. Under Secretary of Economy, Ministry of Economy, Chile

ding earth and environmental sciences, astronomy, biochemistry, neurosciences, epidemiology, mental health, aging, and global health. Dr. Aguilera also hosted a meeting supported by the Columbia Global Centre Latin America in Santiago to discuss funding opportunities for Columbia faculty and researchers jects and long-term collaboration with Chilean academic partners.

Chinese representatives to visit Chilean counterparts in joint projects

epresentatives of the Chinese Academy of Agricultural Mechanization Sciences (CAAMS) of the Ministry of Science and Technology of the People s Republic of China (MOST) are due to visit next July the research teams of Universidad Arturo Prat and Universidad del Bío-Bío selected through a call for expression of interest to participate in joint projects with the CAAMS in 2012 and 2013 respectively.

The research team of Universidad Arturo Prat led by Dr. Sonia Montecinos that is participating in a wind and solar hybrid power system pilot project will receive the second CAAMS visit with the purpose of installing and adjusting the in August 2012 in Beijing, with solar hybrid power pilot system. The research team of Universidad del Bío-Bío led by Dr Luis Andrés Segura participating in the project "Application and promotion of the security monitoring and vacuum freeze-drying technology on fruit and vegetable products in Chile" will receive the first visit of CAAMS and will include the development of activities related to the project, namely project plans, schedule, time table and field visits to food companies and farms.

The cooperation between CONI-CYT and CAAMS is framed by the Memorandum of Understanding (MoU) signed by both institutions

the purpose of promoting the research and development of scientific tools and technology as well as introducing improved methods for agricultural engineering.



Dr Luis Andrés Segura of Universidad del Bío Bío.

Department of International Relations receives record number of applications

he Department of International Relations of CONICYT received 137 applications for the 2013 Call for Proposals in support for International Networking between Research Centres. Meanwhile the 2013 Call for Proposals Supporting the Development of Research Projects between Chile and the U.S. received 47 applications. The number of applications received for each call more than doubled since last year.

The 2013 Call for Proposals in support for International Networking between Research Centres funds one year networking projects between research centers in Chile and those based abroad, specifically for short visits, seminars and other joint activities. The 137 applications received for this call involve the participation of 180 foreign institutional partners over 26 countries. The most represented countries are the United States (19%), the United Kingdom (11%), France (10%) and Germany (9%). Brazil is the country with the most applications (8%) in Latin America. The applications received are from 35 different thematic areas, biological sciences being the most represented (8%), followed by electrical, electronic and information engineering (7%), and industrial biotechnology (6%).

Successful applicants to this call will receive up to between US\$32.888 (\$16 million CLP/€25.693) to US\$51.388 (\$25 million CLP/€40.147) depending on the country of the foreign counterpart. Projects involving access



to scientific and technological equipment in foreign institutions may additionally receive up to US\$10.277 (\$5millionCLP/€8.029).

The 2013 Call for Proposals Supporting the Development of Research Projects between Chile and the U.S. funds 3 years research projects between Chilean and NSF-supported US researchers in 5 specific thematic areas. The most represented thematic area of the applications received for this call is ecology/biodiversity (47%). This year, the call also offered a special opportunity for projects with researchers from Massachusetts in biotechnology and related areas. Successful applicants to this call will receive up to US\$102.777 (\$50 million CLP) per project per year over a period of 3 years.

The estimated date for the publication of the results for both calls is September 2013. The results will be communicated by registered letter and email to the applicants as well as published on the CONICYT website.

news clips

2012 networking project between the Centro de Estudios de Historia Política and the Centre for the Study of Colonial and Postcolonial Societies in Bristol (UK)

UDP to carry out research for the development of the Americas IDRC-CONICYT



•ONICYT in partnership with the International Development Research Centre (IDRC) of Canada selected through a call for expression of interest the project "The Architecture of the Diversity: institutional design and capacities for conflict resolution in the Americas" sponsored by the Universidad Diego Portales (UDP). The project, that also involves the participation of researchers form the Universidad Católica de Temuco and the Universidade de Brasilia, will receive from IDRC approximately \$200.000 Canadian dollars (\$95.000.000 CLP) for one year beginning the second half of 2013.

The inter-institutional project will be coordinated by Dr. Jorge Pablo Gordin of the UDP and aims to study the impact of the institutional design in the reduction of conflicts and the incorporation of diversity as a variable to explain the construction of democratic legitimacy through a comparative study between Chile and Latin American countries.

The UDP expression of interest was selected for its scientific excellence, the experience and abilities of the team that will develop the project, its solid regional focus, the feasibility of the its work plan as well as the expected impact of the research performed and the results.

The project was chosen over 14 other projects submmitted by researchers from non-profit public or private universities, institutes and research centres in Chile. IDRC will also finance similar projects in Brazil, Colombia and Mexico.

he Extraordinary General Assembly of the Ibemanager for the 2013-2014 period. The Assemro-American Programme for Science, Techbly also agreed that the Secretary General should nology and Development (CYTED), held on the designate an ad-hoc group responsible for preparing a proposal for new instruments and future ac-27th and 28th of June in Buenos Aires, was attended tivities related to innovation, to be presented at by representatives of science, technology and innothe next General Assembly by the end of this year. vation organisations from the signatory countries.

The CYTED programme was created in 1984 through The Assembly approved the report presented by an International Framework Agreement signed by 19 the CYTED Programme Areas and Instruments Re-Latin American countries, alongside Spain and Portuview Committee, elaborated during a meeting held gal. The aim of the programme is to contribute to the on the 26th of June also in Buenos Aires. The report balanced and sustainable development of the Ibepointed to the need to prioritize and narrow down ro-American region by setting up mechanism for cothe topics of future calls as well as to establish a operation between Science and Technology Nationstricter mechanism for monitoring and evaluating al Organisations, Organisations for the Promotion of the actions agreed. The document also mentioned Innovation and research groups based at universities, the possibility of generating an instrument to en-R&D centres and innovative companies in the Region. courage the participation of a new generation of researchers and to focus efforts towards the devel-The programme activities are focused on seven thematic areas: agro-alimentation, health, industri-

opment of strategic projects in specific topics that include the participation of at least 5 countries. al development, sustainable development, global change and ecosystems, communication and infor-During the activity, the delegates also elected mation technologies, science and society, and energy. Rosa Wachenchauzer from Argentina as the ICT



CYTED Extraordinary General Assembly in Buenos Aires. Photo credit: Mincyt, Argentina.

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Seminar to access research funding from the US Tri-Service Science Agencies

ONICYT in partnership with the U.S. Air Force Office of Scientific Research (AFOSR), the International Technology Center (ITC-Americas) Global) and the Office of Naval Research (ONR) invite university researchers and authorities to attend a seminar to review the basic research funding mechanisms and areas of support available for international cooperation from these science agencies.

The seminar will include a session explaining the step-by-step application proccess and required enrollments to receive funding from United States government programs including DUNS number, NCAGE code, and SAM registration.

The Tri-Service grants support international science in the areas of bio-science, energy, information systems, material science, modeling and simulation. The activity will take place on the 7th of August at



the US Embassy in Santiago from 9 AM to 13 PM.

For further information please contact Pedro Figueroa at pfigueroa@conicyt.cl

news clips

CONICYT attends Ibero-American Cooperation Programme general assembly





UPDATES



4th INCO Conference, Marseille

he 4th conference of the INCONTACT project of the EU 7th Framework Programme (FP7), and the annual National Contact Points (NCP) meeting took place on the 17th and 19th of June in Marseille, France.

The main topic of the conference was the future of international cooperation in research and innovation between Europe and third countries. The event had a particular, but not exclusive focus on Latin America and the Caribbean (LAC) and Mediterranean Partner Countries (MPC). The conference presented opportunities for developing and emerging countries in Horizon 2020 and other funding sources for projects of mutual interest between the EU and the focused regions by the conference.

During the opening session of the conference CONICYT gave a presentation about Chile's experience cooperating with the EU. CONI-CYT also presented at this global forum the instruments in Chile for international cooperation as well as the national strategy for the internationalisation of science in Chile.

The meeting was attended by over 100 NCPs from all over the world, representatives of EU member states, the EU Commission, and coordinators of FP7 projects with international partners.

Launch of collaborative project between the EU and Latin America

he Strategic, Sustainable R&I Cooperation with Latin America: Climate Action, Resource, Efficiency and Raw Materials (ENSO-CIO-LA) project kick-off meeting took place on the 20th and 21st of June in the Czech Republic.

The ENSOCIO-LA project began its activities on the 1st of May 2013 and it will run until the 30th of April 2015. The main objective of the project is to establish sustainable and integrated research and innovation cooperation between the EU and Latin American countries in environmental matters, namely in climate change, resource efficiency and raw materials. ENSO-CIO-LA will also help improve dissemination and the exploitation of research results in this area by different user groups. This will be achieved through networking and twinning of existing multilateral and bilateral projects funded by different sources, through the development of efficient interaction schemes between science, industry and users and the joint elaboration of future research priorities and joint activities.

CONICYT is one of the 14 Latin American and European partners participating in ENSOCIO-LA and is in charge of the tasks related to resource efficiency, aiming to strengthen political and scientific dialogue between the EU and Latin American and Caribbean countries about the different aspects of resource efficiency, as well as to provide specific inputs to increase the effectiveness of funding allocation, the exchange of data and to improve the dissemination of the results and initiatives to those responsible for the design and implementation of public policy in both regions.



Chile Opportunities for International Cooperation in Science, Technology & Innovation



Chile: Opportunities for international cooperation in STI brochure

he Chilean-European STI initiative project (CEST+I) funded by the EU, will launch a brochure that presents a wide selection of international cooperation opportunities at the different stages of the research and innovation chain, either open for application to Chilean and foreign individuals, research groups and institutions or that have an international cooperation dimension.

The 50 page edition is framed within CEST+1's objective to disseminate the research opportunities offered in Chile open to the participation of researchers in Europe, but it also includes opportunities for international cooperation in STI with other regions.

Most of the international cooperation opportunities included in the brochure are executed by various CONICYT programmes, but it also incorporates two close to market instruments executed by the Chilean Economic Development Agency (CORFO) to cover the commercialization stage of the innovation chain.

An electronic version of the brochure will be available on the CONICYT website soon.

A cluster of five INCO projects will exhibit a stand of activities between the EU and Latin American and the Caribbean countries within the EU ICT 2013 Conference "Create, Connect, Grow" to be held between the 6th and 8th of November in Vilnius, Lithuania. The EU-LAC Gateway stand is a joint initiative between ALCUE NET (Latin America, Caribbean and European Union Network on Research and Innovation) and the four Latin American EU liaison offices (Argentina, Brazil, Chile, and Mexico). The projects altogether support the whole of EU-LAC R&I cooperation, including ICT, with specific work packages devoted to addressing societal challenges through actions in the ICT thematic priority of the Joint Initiative for Research and Innovation (JIRI).

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Visitors to the EU-LAC Gateway stand will find a one-stop shop for all EU-LAC activities within ICT 2013 where new potential co-operation in ICT research and innovation initiatives can be shaped and channelled in the most appropriate forms.

LAC ICT delegates will attend the stand to promote their organisations, their research and innovation initiatives, and to network with other key players and potential partners for ICT projects in view to enhanced cooperation with EU counterparts in Horizon 2020.

For further information visit https://ec.europa.eu/digital-agenda/en/ict-2013



CEST+I

CASES

Developing novel waste derived packaging products

The Eclipse project is a consortium that includes 9 partners from European institutions and 4 partners from South American countries to develop novel waste derived packaging products for the agricultural market via the use of waste derived materials. The Chilean participants in this project, financed by the EU Seventh Framework Programme (FP7), Dr. Deodato Radic, Head of the Macromolecules Group of the Pontificia Universidad Católica de Chile (PUC) and Mario Venegas, CEO of Antartic SeaFood, a fishing company located in Coquimbo, tell us about their role in the project and the benefits of participating in the consortium.

•he Eclipse project was originally conceived further." Antartic SeaFood's role in the project is by Dr. Iñaqui Mondragón, the eminent scientist founder of the Materials and Technologies Group at the University of the Basque Country, who sadly passed away unexpectedly just before the project began in April 2012. Dr. Mondragón invited the Macromolecules Group led by Dr. Radic at PUC to participate in the project. "We were asked to get a company involved in the project and via Dr. María Cristina Morales from the Universidad Católica del Norte in Coquimbo, I contacted Antartic SeaFood, where I found a group of very young and enthusiastic entrepreneurs", says Dr. Radic.

Among those entrepreneurs, was Mario Venegas, who explains that the main motivation behind Antartic SeaFood's involment in the project was to add value to the company's waste. "Now our waste is sent to plants for the production of crustaceous flour, but our aim with this project is to go

to supply the prawn and cold water shrimp waste materials, and to support the extraction of chitin nanofillers from the prawn and shrimp waste. The PUC's role in the project is the isolation, purification of chitin from shell of shrimps and prawns, and characterization of all and each one of the product such as initial products as well as final ones.

"The collaboration with Antartic SeaFood has been so spectacular", says Dr. Radic, "that we are the group in the project which has made the biggest progress so far". Dr Radic s enthusiasm towards his team's Chilean partner also extends to the international partners of the project. "The experience working with the project's partners has been fantastic. We learn from each other. If I do not understand what they do, they explain it to me and vice versa. We have achieved great synergy".



Meeting point

Dr Radic is positive that projects such as Eclipse are very important to the development of science in Chile. "I think that Chile offers a solid scientific base, as well as a great variety of raw materials, particularly from fishing, therefore we are able to supply raw materials and probably to develop microfiber products to make biodegrable packaging".

CEST+I

The project is also interesting from the point of view of the interaction between academia and industry, which in Chile has been a slow process. According to Dr. Radic in Chile "there has been a lack of young minds interested in working with the industry. I was fortunate to be able to meet very young entrepreneurs who had the vision to work with the academy." Mario Venegas agrees, "there is a need for industry and academia to get closer", he says. "On the one hand, there is a need for universities to take the results of their research to the pilot stage and then to be able to take this to the market. On the other hand, there is the industry which is concerned with production, but lacks the initiative to go and find the specialists who today are at universities. I think there is a need to get academia closer to industry and vice versa".





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european connection

CASES



Crustacean waste provided by Antartic SeaFood to the project.

The Project

CLIPSE promotes a more sustainable and environmentally friendly approach to packaging, via the use of waste derived materials unrelated to fossil fuels and to the food chain. The main objective of Eclipse is to revalorize waste derived products (algae biomass waste and plant and crustacean waste) into novel packaging materials.

The Partners

The Eclipse project relies upon the participation of several companies: ALGAENERGY (Spain), GALACTIC (Belgium), FUTERRO (Belgium), BANACOL, (Colombia), ANTARTIC (Chile) to supply the raw materials (algae, lactic acid, PLA, banana waste, and seafood waste) and research groups active on biopolymers and nanoparticle functionalisation and dispersion: UMONS (Belgium), CIDETEC (Spain), FRAUNHOFER (Germany), LTU (Sweden), UPV/EHU (Spain), UPB (Colombia), PUC (Chile) and a global end user with multiple plastic packaging converting facilities (BANACOL).

EU budget contribution

3,725,000 EUR



VOICES

What's Chile's role in the future development of polar science?

Polar science is part of the policy dialogue action plan between the EU and Chile implemented within the framework of the scientific and technological cooperation agreement between Chile and the EU. In line with this action plan, the Chile-European STI initiative project (CEST+I) in partnership with the Chilean Antarctic Institute (INACH) are preparing a workshop and scientific seminar to take place in November in Punta Arenas. The activity will focus on the exchange between Chilean and European researchers in the area of climate change and polar science (Arctic and Antarctic). We asked the Director of INACH, Dr. José Retamales, to explain where Chile stands on the present and future development of polar science, this is what he had to say.

few weeks ago INACH published a guidebook collecting the Antarctic polar heritage of Punta Arenas, INACH headquarters since 2003. The 60 page edition tells about the places where Shackleton, Amundsen, Scott, De Gerlache, Charcot and several other intrepid Antarctic explorers lived whilst they were in Punta Arenas. They chose this city as an entrance and exit to the Antarctic in the late nineteenth and early twentieth century.

Today, as the twenty-first century progresses, 15 National Antarctic Programmes from consultative parties to the Antarctic Treaty System are still choosing Chile and Punta Arenas as the starting point for their polar expeditions: Germany, Brazil, Bulgaria, China, South Korea, Ecuador, Spain, the United States, the Russian Federation, Peru, Poland, the UK, the Czech Republic, the Ukraine and Uruguay. To them, Portugal and Venezuela must be added, countries that still have not reached the status of consultative parties to the Treaty. No other country or any other city in the world receives so many National Antarctic Programmes every year. This strength is based primarily on our proximity to the Antarctic Peninsula and in the offer (barely sufficient) of sci-



entific and logistics services associated to polar activity.

From geographical proximity to scientific robustness

Despite physical proximity being an obvious advantage, by itself, it neither allows for the consolidation



VOICES

of a strong scientific programme | Julio Escudero Antarctic Stanor the ability to influence international forums or even to be an attractive partner to other international programmes. The strategy, then, has been to raise the quality of Chilean polar science, increase our scientific and logistics platform in Antarctica. prioritise the development of new themes for science and to promote international cooperation.

Currently, the Chilean Antarctic Science Programme (PROCIEN 2013) has 63 ongoing projects (threefold the 2004 figure) and several funding sources that allow initiatives to support undergraduate and graduate students, young researchers and experienced interdisciplinary groups, comprising scientists from national and international institutions. INACH has therefore set a new standard for Chilean Antarctic Science, an experience we are sharing with other National Antarctic Programmes.

Funding for Chilean Antarctic science has grown steadily since 2004. This growth has been possible through alliances between INACH and various other national agencies concerned with S&T in Chile and abroad, and steadily promoting the various competitive funds among scientific community. the

In terms of the Chilean logistics platform, INACH has built scientific laboratories in several Chilean Antarctic stations and is implementing every year better labs in our Professor

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tion (King George Island) and in Punta Arenas, establishing a chain which allows sampling and adequate preservation and transfer outside Antarctica.

A gateway to the world

In recent times we have signed agreements with several countries like China, Korea, New Zealand, the United Kingdom, Brazil, Belgium and Poland, opening countless possibilities not only for Chilean science, but also for those countries. It is a win-win situation where we believe it has been shown that the thematic and geographic areas can be expanded in the Antarctic Peninsula, lowering costs and increasing the quality of the scientific output. Even the most committed countries to Antarctic Science are open to international cooperation as a way to overcome the pressing budget cuts that affect an important part of the polar science community, as international financial crisis comes by.

In summary, our aim in Chile is to achieve the status of a partner of global significance in the Antarctic science arena, instead of just receiving recognition for our proximity to the White Continent, thereby, taking advantage of the infrastructure Chile has built over time at various Antarctic Peninsula sites.



Dr. José Retamales. Photo credit: F. Trueba

OUR AIM IN CHILE IS TO ACHIEVE THE STATUS OF A PARTNER OF GLOBAL SIGNIF-ICANCE IN THE ANTARCTIC SCIENCE ARENA, INSTEAD OF JUST RECEIVING RECOGNITION FOR OUR PROXIMITY TO THE WHITE CONTINENT, THEREBY, TAKING ADVANTAGE OF THE INFRASTRUCTURE CHILE HAS **BUILT OVER TIME AT VARIOUS** ANTARCTIC PENINSULA SITES."

interview



Salazar Diego at his office in the Department of Antropology, of the Faculty of Social Sciencies of the Universidad de Chile.

Diego Salazar

Arqueologist who is part of the team of an ECOS-CONICYT project about the prehistory of copper that prepares groundbreaking scientific mission to France for the study of the Chilean metallurgy.

How did cooperation with the have jointly identified along with French team come about?

The point of contact for collaborating with the French colleagues in the ECOS-CONICYT project and a previous CNRS project was Valentina Figueroa, a co-researcher in both projects who did her PhD in France under the supervision of one of the researchers from the French counterpart. Following her return to Chile she put both teams in contact and we began exchanging information, common interests, analysis and planning joint projects.

What have been the results obtained in the missions carried out in Chile and France during the first year of the ECOS-CONICYT project?

The ECOS-CONICYT project has financed scientific missions that have allowed the French colleagues to participate in the field work in northern Chile included within the FONDECYT framework project of this international collaboration led by Dr. José Berenguer. We

the French team three prehistoric metallurgical sites that are probably the most important evidence of pre-Hispanic metallurgy known in Chile. This discovery is especially relevant because of the number of sites found, their conditions, complexity and state of conservation. Moreover, the discoveries have opened up a new line of work that previously had few possibilities for development in Chile.

What progress do you expect to make during the mission of the Chilean team to France next September?

We are going to perform excavations at a French Neolithic metallurgy site which is very significant since one of the objectives of our project is precisely to compare research methodologies. We also plan an experimental workshop on metal casting using pre-Columbian technology and materials. In order to do this we are taking with us materials similar to the furnaces we are stud-

THE COLLABORATION **PROJECT HAS ALLOWED** US TO DEEPEN THE STUDY AND COMPREHENSION OF THE SITES WE DIS-Covered in a way that WE COULD HAVE NEVER **ENVISAGED WITHOUT THE COLLABORATION OF THE**

ying in Chile to replicate them and perform experihas allowed us to go further, gaining a deeper unments. This will be the first time in the study of the derstanding of the technology and working of these Chilean metallurgy that such activities take place. ancient furnaces. This has resulted providential given the importance of these finds. In sum, the collabora-Lastly, we are going to analyse the samples obtained both in Chile and France in order to better recontion project has allowed us to deepen the study and struct the antique metallurgy technologies that we comprehension of the sites we discovered in a way are studying. During the mission we are going to use that we could have never envisaged without the cola PIXE, which is an accelerator of particles used to laboration of the French colleagues. analyse the elemental composition of metals. This technique is not available in Chile. What special characteristics does Chile have for

Has the ECOS-CONICYT project been an impulse for future new projects with the French team?

Chile has a very privileged territory for the study of antique human settlements. The diversity of en-Indeed. The important findings we made had a great vironments in this small territory that we call Chile impact not just here but also on the French team, so has been the setting for very different and particular they are very interested in continuing with the colhuman experiences over time that have led to a rich laboration. In fact, we are exploring the possibility of cultural diversity. Even though sometimes we do not applying to a LIA or a GDRI which are CNRS⁻ funding see or do not accept this, Chile 's identity is really its instruments. In Chile, we are exploring the possibility cultural diversity, not its homogeneity. Understandof applying next year to CONICYT s call for proposals ing the history and trajectories of this diversity is not in support of international networking between reonly a fascinating scientific task, but it is also very search centres. I think that the current projects have relevant to understand our present society and some definitely strengthened the collaboration and that of its current problems. Particularly in the topics that this will continue in the future. concern us in this collaboration project, Chile is also privileged because here we have some of the most important pre-Hispanic mining evidence in the con-How has the international collaboration project tinent. Through the recent findings we have made, contributed to the development of the FONDECYT we have shown that in Chile we also have one of the most important metallurgical sites as well. I believe It has been pivotal because in Chile archeometalthis is very relevant for a country whose economy is lurgy is scarcely developed which is a paradox, given based on mining, because it not only shows us the the importance of metals and mining in general in antiquity of this activity, but it also shows us clues the history and present state of the country. Within about different ways of doing mining, different ecothe FONDECYT project we planned to explore these nomic systems, different cultural possibilities that issues, but the international collaboration project we are open to explore as a society.

framework project?



ECOS-CONICYT project team at a prehistoric metallurgic site in Collahuasi, northern Chile. July 2013

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Cooperation in S&T between Chile and the U.S. reviewed

The scientific and technological ties between Chile and the U.S. are stronger than ever thanks to the efforts of the Chilean scientific community which has been able to successfully integrate itself into one of the world's most competitive science, technology and innovation systems. Here we reviewed some of CONICYT's iniciatives that have contributed to this process.

U.S. has been an engine for innovation and acted as a magnet for talented scientists from all over the world. The high development achieved by the U.S. higher education system with its cutting edge research infrastructure and prestigious universities, has motivated CONICYT to actively support cooperation with the U.S. as a means of encouraging Chile's S&T development.

Talent Magnet

The ties between Chile and the U.S. in S&T are probably best known

ver the past 50 years, the thanks to the high number of students that have been awarded a scholarship by CONICYT to complete Masters and PhD degrees at some of the U.S.⁻ most prestigious universities. In fact, during the period 2006-2012, U.S. universities concentrated the highest percentage (25%) of CONICYT PhD scholarship holders abroad. Currently, Columbia University is the university in the U.S. chosen by most (56) CONICYT scholarship holders abroad to pursue Masters and PhD degrees. Magdalena Gil, who is completing a PhD in Sociology at Columbia University as part

of the CONICYT-Fulbright agreement, says that some of the best things of her academic experience in the U.S. have been to be able to expand her network of contacts, to access the university s excellent library resources and to be immersed in an environment where "you feel that the university is the most important thing as is contributing to the creation of knowledge and receiving recognition for it."

Columbia University, along with Harvard University and the Massachusetts Institute of Technology (MIT), are among the 10 world

Chile. As a result of these bilateropened the first call for scholarships for PhD degrees at universities with bilateral agreements with Chile that will allow students, who have been unconditionally accepted to a PhD programme at one of the subscribing univer-BECAS CHILE, to be automatically

Chile s Masters and PhD degrees students, the U.S. is also an important destination for PhD interns and postdoctoral fellows supportthe U.S. to complete PhD internships and 59 students to com-

Aiming high

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2013, CONICYT's Call for Proposals Supporting the Develbetween Chile and the U.S. will joint projects between researchers in Chile and researchers from the U.S. who lead projects funded by the National Science Foundain the State of Massachusetts.

Dr. Luca Mao, from the Pontifi- ration projects with the U.S. are cia Universidad Católica de Chile also an important contribution to leads the team of researchers in the training of future scientists. In Chile who alongside NSF-funded researchers led by Dr. Ellen Wohl project led by Dr. Mao, PhD stu-

best universities, according to from Colorado State University, international rankings, that have were awarded funding in 2012 to signed bilateral agreements with carry out a three year international scientific collaboration project. al agreements, this year CONICYT According to Dr. Mao, it is very significant to be able to collaborate with the U.S. counterpart in this project on the effects of native forest replacement by exotic plantations on the biodiversity and ecosystem of the rivers in the south of Chile. This project, sities and who also meet the el- he explains, "is the first of its kind igibility requirements defined by in Chile. There is no previous experience in the country in the awarded a scholarship for PhD de- study of the phenomena and progrees, renewable for up to 4 years. cesses involved, but through this collaboration we will be work-Aswellasattracting the majority of ing with Ellen Wohl, a specialist in fluvial ecology with vast experience studying these issues". Moreover, the scientific collaboration with the U.S. team, says ed by CONICYT. Since 2008, a total Dr. Mao, "adds value to the proof 110 students have travelled to ject allowing us to save time and capacity in interpreting the results. We can virtually double the plete postdoctoral fellowships. study sites and will be able to make comparisons with the data collected in basins in both coun-In recent years S&T coopera- tries". The project, according to tion between Chile and the US Dr. Luca, is also an opportunity for has increased significantly. In the U.S. research team to expand the range of environments they study. "We do not know whether opment of Research Projects there is more habitat diversity in basins with native forest or in baaward over US\$1.5 million to 5 sins with species of replacement. projects in their second year of There are some experiences in implementation and to 10 new the U.S., but the examples of basins found in Chile are very relevant at an international level. The results of this research are going to be very relevant from an intertion (NSF) or those who are based national point of view", he says.

International scientific collabofact, within the framework of the



Fernando Ugalde (left) and Claudio Gomez at Conaf Alto Lircay reservoir.

29 u.s. Principal **Investigators** in individual research projects (2010 - 2013)

124 visiting U.S. researchers

13 U.S. co-researchers

ed by Colorado State University for a research visit next year. During The the visit, Fernando Ugalde expects to learn firsthand the methodology used by the U.S. counterpart, access technology which is not available in Chile and carry out field work in U.S. rivers. "The U.S. team have developed areas that in Chile have scarcely been explored. Besides, I think that meeting Dr. Ellen Wohl in person and learning from her experience is a great opportunity for my PhD training", he says.

Future perspectives

Another CONICYT initiative that has positively impacted S&T cooperation between Chile and the U.S. is the support provided for international networking between research centres in Chile and those in the U.S., among other countries. In the last 4 years over a third (16) of the networking projects awarded by CONI-CYT have involved the participation of research centres from the U.S. These projects have been awarded in total approximately US\$470.000. CONICYT has also encouraged the exchange between the scientific communities in Chile and the U.S. by establishing international alliances with prestigious universities. Last April CONICYT, along with the Under Secretary of Economy of the Ministry for the Economy, Development and Tourism of Chile, signed agreements with Columbia University and the University of California Berkeley to accelerate and intensify the exchange of students, researchers, scientists, and academics between the subscribing universities and Chile. These are the first S&T agreements with Columbia University and the University of California Berkeley, establishing both parties intentions to define long-term work programmes

dent Fernando Ugalde, will be host- similar to those already existing with MIT and Harvard University. CONintensity of ICYT[´]s cooperation in S&T between Chile and the US achieved so far is a positive indicator of the future perspectives for the development of science in Chile and the integration of the Chilean scientific community within the global S&T community, particularly in the U.S. Illustrative of this is the signing last March of the agreement between CONICYT and the NSF to implement in Chile the Graduate Research Opportunities Worldwide (GROW) programme. GROW will allow science and engineering NSF graduate fellows to

collaborate with research groups in Chile for up to 12 months. Chile is the first Latin American country to join the select group of GROW participants which includes Denmark, Spain, Finland, France, Japan, Norway, Singapore, Sweden, Switzerland and South Korea, connecting Chile's science with the world's leading scientists and infrastructure.



Dr. Luca Mao

projects

23 U.S. scientists attracted to Chilean

universities (2010 - 2012)

13 international networks

beetween research centres (2010 - 2012)

5 joint research

projects funded last year

664 Chilean scholarship holders currently in the U.S.

issue 19

Optimising solar plant operation and maintenance

Future plans to utilise solar energy as the primary energy source of Northern Chile contrast with the lack of studies that determine the impact of solar plants on local ecosystems. A three year project developed jointly by the Universidad Técnica Federico Santa María and the University of Jyväskylä from Finland, is the first in Latin America to investigate the impact of solar plants on the ecosystems. The idea is to establish criteria before harm is done, ensuring that "green solar energy" is as environmentally sustainable as possible as well as profitable. The project is financed by CONICYT and the Academy of Finland (AKA).

r. Marcelo Pérez, who leads the team of researchers in Chile, explains that the Chilean team will study how climatic conditions in northern Chile such as dust and humidity, affect the efficiency of solar panels and how to establish a pattern of maintenance that allows for the optimization of plant operation. Meanwhile, the team of researchers in Finland, led by Professor Jussi Kukkonen of the University of Jyväskylä, will study the effects of large scale implementation and operation of solar plants on the ecosystem through models based on field measurements. "The research will allow us to establish criteria for solar plants to be both economically profitable and environmentally sustainable", says Dr. Pérez.

The CONICYT-AKA project considers testing at the 0,3 MW plant Subsole, located in Copiapó, northern Chile. "We will carry out measurements under ideal conditions of cleanness and then through periodical monitoring we will determine how the plant power is affected by pollution", explains Dr. Pérez.

The project began officially in March 2013. In this initial stage the Finnish team in Finland has collected satellite analysis and spatial information, while the Chilean team has located the most suitable control areas and explored the solar plants in preparation for the first period of fieldwork set to begin next August. the CONICYT budget contribution to the project is US\$185.000 (\$90 million CLP) while AKA will contribute with US\$355.840 (278,000 EUR).

Details

Title: Environmental impact analysis, and sustainability eficiency based criteria for solar energy projects in Northern Chile

Instrument: CONICYT-AKA 2012 Call for Joint Research Projects on NCRC

Chilean **Coordinator:** Marcelo Pérez Universidad Técnica Federico Santa María

Finnish Coordinator: Jussi Vilho Kalevil Kukkonen, University of Jyväskylä



Surface of solar panel in Subsole plant.

call	for	pro	posa	ไร

GEMINI South Telescope Observing Time 2014 - A

who can apply?

Chilean or foreign researchers based at Chilean institutions who are actively engaged in teaching and research within the field of astronomy

Support Gemini South telescope observing time during the period February-July 2014

> dates 1-30 September

CONTACT Edgardo Costa ecosta@conicyt.cl

APEX Telescope Observing Time 2014-A

who can apply? Astronomers working at Chilean universities

Support Apex telescope observing time during the period January-July 2014

> dates September-October

CONTACT Ramiro Franco Hernández rfranco@conicyt.cl

Terms of reference and application form at

www.conicyt.cl/astronomia

August		7	Conicyt-soare
		24	CONICYT institu
		22 - 23	5th Chile-Arge
September	*	2 - 6	CONICYT institu
		4 - 5	Workshop on g
		11	Workshop on El in ICT (Argentin
October	*	1 - 2	Project Angels
		TBC	Big Data Confe
		TBC	Massachusetts

agenda

-SOARD/AFOSR Seminar (Santiago, Chile)

institutional mission to South Korea

e-Argentina Bilateral Ministers Meeting (Santiago, Chile)

T institutional mission to Japan

op on good practices in patenting (Santiago, Chile)

op on EU-LAC Joint Strategy for Cooperation initiatives rgentina)

Angels Summer School (Colombia)

a Conference & Workshop (India)

nusetts scientific mission in Biotechnology (Chile)



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