UNITWIN/UNESCO Chairs Programme
Progress report

Period of Activity: Academic year 2012
Title of the UNESCO Chair or Network: Coastal Oceanography

The UNESCO IOC Chair in Oceanography is the umbrella for capacity building in Ocean Sciences at University of Concepción. This year the Chair was additionally supported by the Partnership for Observation of the Global Oceans (POGO), LIA MORFUN, the Fulbright-Commission Chile, the Embassy of France in Chile, COPAS Sur-Austral, Vice Rectory of Research and Development, Faculty of Natural and Oceanographic Sciences, Department of Oceanography and Graduate School at University of Concepcion.

Report established by: Function / Title:
Professor Dr. Silvio Pantoja / Chairholder and Coordinator
Summary

I. Address: Page 3

II. Available resources: Page 3
   1. Human resources: Page 3
   2. Material resources: Page

III. Activities: Page 6
   1. Education/Training/Research
      a) Courses and students
      b) Expenses by funding source
   2. Conferences/Meetings.
   3. Missions/Travels abroad
   4. Visiting Professors/Fellowships
   5. Information and documentation activities
   6. Others

IV. Impact: Page 30

V. Forthcoming activities: Page 31

VI. Development Prospects: Page 31

Annexes
Annex 1: Target groups
Annex 2: Geographical coverage
Annex 3: Funding sources
I. Address

<table>
<thead>
<tr>
<th>Name</th>
<th>Silvio Pantoja</th>
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<tbody>
<tr>
<td>Function/Title</td>
<td>Professor Dr.</td>
</tr>
<tr>
<td>University/Institution</td>
<td>School of Natural and Oceanographic Sciences</td>
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<tr>
<td>Faculty/Department/Center</td>
<td>Department of Oceanography/COPAS Sur-Austral</td>
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<td>City</td>
<td>Concepcion</td>
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<td>Country</td>
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<tr>
<td>Phone</td>
<td>+56 41 220 4520</td>
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<tr>
<td>E-mail</td>
<td><a href="mailto:spantoja@udec.cl">spantoja@udec.cl</a></td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://www.udec.cl/oceanoudec">www.udec.cl/oceanoudec</a></td>
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</table>

II. Available resources

Please specify for each item, when available, total cost and funding sources (for guidelines see Annex 3)

Human resources

1. - For the administration of the UNESCO Chair or Network
   • Chair holder and Coordinator of the Austral Summer Institute (ASI) at UDEC
   • Manager for ASI
   • Administrative assistant (part time)

2. - For the teaching/training/research activities. Please specify number of full Professors, researchers, visiting professors, lecturers, others
FACULTY MEMBERS IN THE GRADUATE PROGRAM IN OCEANOGRAPHY
2012

- Arancibia, Hugo (Dr. rer. Nat. Bremen, Fisheries Ecology, Stock Evaluation)
- Carrasco, Franklin (Dr. University of Concepcion, Benthic Ecology)
- Castro, Leonardo (Ph.D. Stony Brook, USA, Biological Oceanography)
- Cisternas, María Eugenia (Dr. rec. Nat. Heidelberg, Germany, Geology)
- Daneri, Giovanni (Ph.D. Southampton, Biological Oceanography)
- Escribano, Rubén (Ph.D. Dalhousie, Biological Oceanography)
- Farías, Laura (Dr. University of Concepcion, Biogeochemistry)
- Fernández, Camila (Dr. Université de la Méditerranée, Francia)
- Figueroa, Dante (Dr. Rec. Nat., Goettingen, Physical Oceanography)
- Gallardo, Cristian (Dr. Sciences, CICESE, Mexico)
- Gallardo, Víctor Ariel (Ph.D. S. California, Biological Oceanography)
- Galleguillos, Ricardo (Ph.D. Wales, Population Genetic and Evolution)
- González, Humberto (Dr. rec.nat. Bremen, Biological Oceanography)
- Kelm, Ursula (Ph.D. U.K., Geology)
- Lange, Carina (Ph.D. Buenos Aires, Geological Oceanography)
- Macaya, Erasmo (Dr. Marine Biology, Wellington, New Zealand)
- Marchant, Margarita (Dr. rec. nat. Bremen, Geological oceanography)
- Moffat, Carlos (Ph.D. MIT/WHOI, Physical Oceanography)
- Morales, Carmen (Ph.D. London, Biological Oceanography)
- Oyarzún, Ciro (Dr. University of Concepción, Fish Biology)
- Pantoja, Silvio (Ph.D. Stony Brook, Chemical Oceanography)
- Pincheira, Marcos (Dr. rec. nat. Heidelberg, Geology)
- Pizarro, Oscar (Ph.D. Gothenburg, Physical Geography)
- Quiñones, Renato (Ph.D. Dalhousie, Biological Oceanography)
- Salamanca, Marco (Ph.D. Stony Brook, Chemical Oceanography)
- Sobarzo, Marcus (Dr. University of Concepcion, Physical Oceanography)
- Schneider, Wolfgang (Dr. Nat. Sciences, Hamburg, Physical Oceanography)
- Tapia, Fabián (Ph.D. MIT/WHOI, Biological Oceanography)
- Ulloa, Osvaldo (Ph.D. Dalhousie, Biological Oceanography)
VISITING PROFESSORS ACADEMIC YEAR 2012 (throughout January 2013)

- Gabriela Campana, Instituto Antártico Argentino, Argentina
- Cristina Dorador, Universidad de Antofagasta, Chile
- Ernesto Gramsch, Universidad de Santiago de Chile, Chile
- Edgardo Hernández, Instituto Antártico Argentino, Chile
- Klaudia Hernández, Universidad Austral de Chile, Chile
- Wade Jeffrey, University of West Florida, United States
- Fabien Joux, Observatoire Océanologique de Banyuls-sur-mer, France
- Verónica Molina, Universidad Andrés Bello, Chile
- Elías Ovalle, Universidad de Concepción, Chile
- Miguel Rivas, Universidad de Tarapacá, Chile
- Alberto Piola, Servicio Hidrográfico de la Armada, Argentina
- Alexander Murray, Marine Scotland Science, Scotland
- Nabeil Salama, Marine Scotland Science, Scotland
- Rodrigo Montes, Universidad de Concepción, Chile
- María Vernet, Scripps Institution of Oceanography, United States
- María Nielsdóttir, National Oceanography Center Southampton, United Kingdom
- Ian Salter, Observatoire Océanologique de Banyuls-sur-mer, France

3. - For the information and documentation activities

- Director Graduate Program in Oceanography
- Administrator, School of Natural Sciences and Oceanography
- Administrator, Department of Oceanography
- Administrative Assistant, Graduate Program in Oceanography

4. - For other activities

- Administrative personnel Department of Oceanography

2. Material resources

1. - For the administrative work

- Office for Chairholder and Administrative Assistant
2. - For the teaching/training/research activities

- Offices for faculty members and visiting professors, Campus University of Concepcion
- Classrooms, Campus University of Concepcion
- Student Computer Room, Campus University of Concepcion

3. - For the information and documentation activities

- Library at the School of Natural Sciences and Oceanography and University Main Library

4. - For other activities (please specify)

III. Activities

Please provide information on items 1 to 7 for each activity, when available, and specify: Target groups, in accordance with Annex 1 –Geographical coverage, in accordance with Annex 2 –Funding sources, in accordance with Annex 3.

1. Education / Training / Research

* Title and expected results for each course:

**Austral Summer Institute XIII (ASI XIII)**

*Understanding physical, chemical and biological processes in the marine environment*

Courses for the Academic Year 2012 throughout January 2013.

1. **Symposium UV radiation and marine ecosystems: Current research and strategies for the future (5-7 December, 2012)**

- Lic. Gabriela Campana, Instituto Antártico Argentino, Argentina
- Dr. Cristina Dorador, Universidad de Antofagasta, Chile
- Dr. Camila Fernández, Observatoire Océanologique de Banyuls-sur-mer, France. Visiting Professor UDEC
- Dr. Ernesto Gramsch, Universidad de Santiago de Chile, Chile
- Lic. Edgardo Hernández, Instituto Antártico Argentino, Argentina
- Dr. Klaudia Hernández, Universidad Austral de Chile, Chile
- Dr. Wade Jeffrey, University of West Florida, United States
- Dr. Wade Joux, Observatoire Océanologique de Banyuls-sur-mer, France
- Dr. Verónica Molina, Universidad Andrés Bello, Chile
2. Why do diseases emerge in marine aquaculture? And what can we do to limit this? (7-11 January, 2013)

- Dr. Alexander Murray, Marine Scotland Science, Scotland
- Dr. Nabeil Salama, Marine Scotland Science, Scotland

3. Circulación y masas de agua en el Atlántico Sudoccidental (7-11 January, 2013)

- Lic. Alberto Piola, Servicio Hidrográfico de la Armada, Argentina

4. Trace metals in the oceanic carbon cycle (14-18 January, 2013)

- Dr. Maria Nielsdóttir, National Oceanography Center Southampton, United Kingdom

5. Coastal Antarctic ecosystems and the case of the Larsen Ice Shelf System (14-18 January, 2013)

- Dr. María Vernet, Scripps Institution of Oceanography, United States


- M.Sc. Rodrigo Montes, Ph D (c ) Universidad de Concepción, Chile

7. Chemical and biological characteristics of the oceanic phosphorus cycle (21-25 January, 2013)

- Dr. Ian Salter, Observatoire Océanologique de Banyuls-sur-mer, France

2. Duration

The UV Symposium lasted 3 days. The last day was devoted to practical activities. The Symposium included poster presentations by groups of local high school students.

All of the other courses lasted 5 days, except the course “Análisis de series de tiempo en ecología y oceanografía” which lasted 10 days.

Target groups: Graduate and senior undergraduate students from Latin American countries. Selection was based on academic credentials. Although we favored the admission of students with experience (and focused) in the particular area of the
course they applied to, we also accepted interested students with no background in the specialty. Students registered in Graduate Programs received two credits per course from the Graduate School at University of Concepcion.

**Partnership**: (please specify the name of the Institution, city, country)

- Intergovernmental Oceanographic Commission (IOC/UNESCO), Paris, France
- Partnership for Observation of the Global Oceans (POGO), Dalhousie, Canada
- Laboratorio Internacional Asociado (LIA-MORFUN), Concepción, Chile
- Fulbright-Commission, Chile
- Embassy of France in Chile
- COPAS Sur-Austral, University of Concepcion, Concepcion, Chile
- Department of Oceanography, University of Concepcion, Concepcion, Chile
- School of Natural and Oceanographic Sciences, University of Concepcion, Chile
- Vice rectory of Research and Development, Chile
- Graduate School, University of Concepcion, Concepcion, Chile

**Geographical coverage for partners and participants**

A total of 98 students, from Argentina, Brazil, Canada, Cuba, Chile, Ecuador, France, Peru and Uruguay, participated in our activities during the academic year 2012 (throughout January 2013) distributed as shown in Figure 1.

12 students attended two courses, and 1 student attended three courses.
* Outputs: Please specify number of doctoral students

Of the 98 participant students, 22 students were from Ph.D. programs from Chile and other countries and 15 students were from M.Sc. programs from Chile and other countries (Figure 2).

**Figure 2: Academic Background ASI XIII Students**
- Students per Course

**Symposium UV radiation and marine ecosystems: current research and strategies for the future (5-7 December 2012)**

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<tr>
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<td>Gadiel Alarcón M.Sc. in Oceanography</td>
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Circulación y masas de agua en el Atlántico Sudoccidental (7-11 January 2013)

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<tr>
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<tr>
<td>9 Evangelina Garavento</td>
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<td>17 Ana Laura Pita</td>
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Why do diseases emerge in marine aquaculture? And what can we do to limit this? (7-11 January, 2013)

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**Trace metals in the oceanic carbon cycle (14-18 January, 2013)**

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Coastal Antarctic ecosystems and the case of the Larsen Ice Shelf System  
(14-18 January, 2013)

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<tr>
<td>1</td>
<td>Yasna Marín</td>
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<td>Marine Biologist</td>
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<td>Antonela Messina</td>
<td>Undergraduate student in Marine Biology</td>
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**CHILE- Other institutions**

**ARGENTINA**

| 10 | Paula Cossi                 | Lic. in Biological Sciences                       |

**BRAZIL**

| 11 | María Carolina Ribeyro      | M.Sc. Student in Oceanography                     |

**Análisis de series de tiempo en ecología y oceanografía (14-25 January, 2013)**

<table>
<thead>
<tr>
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<tr>
<td>1</td>
<td>Selim Musleh</td>
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**CHILE- University of Concepcion**
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<td>Valentina Manríquez</td>
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<tr>
<td>4</td>
<td>Claudia Pérez</td>
<td>PhD Student in Environmental Sciences - Continental Aquatic Systems</td>
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<td>5</td>
<td>Odette Vergara</td>
<td>PhD Student in Oceanography</td>
</tr>
<tr>
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<td><strong>Chile – Other institutions</strong></td>
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<tr>
<td>6</td>
<td>Patricio Mejías</td>
<td>M.Sc. in Management and Environmental Audit</td>
</tr>
<tr>
<td>7</td>
<td>Pablo Rojas</td>
<td>PhD in Marine Sciences / Biological Oceanography</td>
</tr>
<tr>
<td>8</td>
<td>Heraldo Contreras</td>
<td>PhD in Sciences / Systematics and Ecology</td>
</tr>
<tr>
<td>9</td>
<td>Ximena Vivanco</td>
<td>M.Sc. Student in Environmental Management</td>
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<tr>
<td>10</td>
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<td>PhD Student in Agricultural Sciences</td>
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<tr>
<td>11</td>
<td>Samuel Soto</td>
<td>M.Sc. in Sciences / Fisheries</td>
</tr>
<tr>
<td>12</td>
<td>Sebastián Vásquez</td>
<td>M.Sc. in Sciences / Fisheries</td>
</tr>
<tr>
<td>13</td>
<td>Constanza Gostling</td>
<td>M.Sc. in Marine Sciences / Oceanography</td>
</tr>
<tr>
<td></td>
<td>Name</td>
<td>Degree/Program</td>
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<tr>
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</tr>
<tr>
<td>14</td>
<td>Paola Dávila</td>
<td>PhD in Oceanography</td>
</tr>
<tr>
<td></td>
<td><strong>Argentina</strong></td>
<td></td>
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<tr>
<td>15</td>
<td>Guillermina Ruiz</td>
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<tr>
<td></td>
<td><strong>Brasil</strong></td>
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<tr>
<td>16</td>
<td>Felipe da Costa</td>
<td>M.Sc. Student in Environmental Sciences and Conservation</td>
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<tr>
<td></td>
<td><strong>Cuba</strong></td>
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<tr>
<td>17</td>
<td>Mayelin Carmenate</td>
<td>M.Sc. in Coastal Management</td>
</tr>
<tr>
<td></td>
<td><strong>Ecuador</strong></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Jorge Nath</td>
<td>M.Sc. in Business Administration/Oceanographer</td>
</tr>
<tr>
<td>18</td>
<td>Verónica Ruiz</td>
<td>M.Sc. in Marine and Lacustrine Sciences</td>
</tr>
<tr>
<td></td>
<td><strong>Peru</strong></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>René Chura</td>
<td>M.Sc. in Sciences / Fisheries</td>
</tr>
<tr>
<td>21</td>
<td>Carlos Quispe</td>
<td>M.Sc. Student in Mathematical Statistics</td>
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Chemical and biological characteristics of the oceanic phosphorus cycle (21-25 January, 2013)

<table>
<thead>
<tr>
<th>CHILE- University of Concepcion</th>
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</thead>
<tbody>
<tr>
<td>1 Dharma Reyes</td>
<td>M.Sc. Student in Oceanography</td>
</tr>
<tr>
<td>2 Ana María Jara</td>
<td>Marine Biologist</td>
</tr>
<tr>
<td>3 Evelyn Bustos</td>
<td>Undergraduate Student in Marine Biology</td>
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<tr>
<td>4 Francisco Santibañez</td>
<td>PhD Student in Oceanography</td>
</tr>
<tr>
<td>5 Jeannet Vera</td>
<td>PhD Student in Oceanography</td>
</tr>
<tr>
<td>6 María Lorena González</td>
<td>M.Sc. Student in Oceanography</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILE- other institutions</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>7 Javier Díaz</td>
<td>PhD in Oceanography</td>
</tr>
<tr>
<td>8 Bibiana Jara</td>
<td>M.Sc. in Oceanography</td>
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</tbody>
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<table>
<thead>
<tr>
<th>CANADA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Helen Powley</td>
<td>PhD Student in Oceanography</td>
</tr>
<tr>
<td></td>
<td>CUBA</td>
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<tr>
<td>----------------</td>
<td>----------------------------------------------------------------------</td>
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<tr>
<td>10</td>
<td>Oralis Alburquerque</td>
</tr>
<tr>
<td></td>
<td>M.Sc. in Chemistry</td>
</tr>
<tr>
<td></td>
<td><strong>URUGUAY</strong></td>
</tr>
<tr>
<td>11</td>
<td>Germán Pérez</td>
</tr>
<tr>
<td></td>
<td>M.Sc. in Microbiology</td>
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**EXPENSES**

- EXPENSES UNIVERSITY OF CONCEPCION GRADUATE SCHOOL
  US$ (1 US$ = 471, 54 CLP)

<table>
<thead>
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<th>ITEM</th>
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<tr>
<td>Lodging Alberto Piola</td>
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<tr>
<td>Per Diem Alberto Piola</td>
<td>265</td>
</tr>
<tr>
<td>Lodging María Vernet</td>
<td>1,420</td>
</tr>
<tr>
<td>Per Diem María Vernet</td>
<td>265</td>
</tr>
<tr>
<td>Airfare María Nielsdóttir</td>
<td>1,829</td>
</tr>
<tr>
<td>Lodging María Nielsdóttir</td>
<td>999</td>
</tr>
<tr>
<td>Per Diem María Nielsdóttir</td>
<td>265</td>
</tr>
<tr>
<td>Item</td>
<td>Amount ($)</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Lodging Ian Salter</td>
<td>999</td>
</tr>
<tr>
<td>Airfare Wade Jeffrey</td>
<td>1,790</td>
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<tr>
<td>Lodging Wade Jeffrey</td>
<td>757</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>10,194</strong></td>
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- **EXPENSES UNIVERSITY OF CONCEPCION SCHOOL OF NATURAL AND OCEANOGRAPHIC SCIENCES**
  US$ (1US$ = 480 CLP)

<table>
<thead>
<tr>
<th>Item</th>
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</thead>
<tbody>
<tr>
<td>Logistical expenses, poster and website elaboration</td>
<td>1,486</td>
</tr>
<tr>
<td>Per Diem María Vernet</td>
<td>265</td>
</tr>
<tr>
<td>Coffee breaks and logistical expenses</td>
<td>178</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1,929</strong></td>
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- **EXPENSES UNIVERSITY OF CONCEPCION DEPARTMENT OF OCEANOGRAPHY**
  US$ (1US$ = 480 CLP)

<table>
<thead>
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<th>Item</th>
<th>Amount ($)</th>
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<tbody>
<tr>
<td>Airfare Verónica Molina</td>
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<td>Airfare Klaudia Hernández</td>
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<tr>
<td>Item</td>
<td>Amount (US$)</td>
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<tr>
<td>Airfare Cristina Dorador</td>
<td>434</td>
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<tr>
<td>Lodging Cristina Dorador</td>
<td>300</td>
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<tr>
<td>Dinner with invited professors</td>
<td>658</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1,755</strong></td>
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- **EXPENSES UNIVERSITY OF CONCEPCION, COPAS SUR-AUSTRAL**
  
  US$ (1US$ = 480 CLP)

<table>
<thead>
<tr>
<th>Item</th>
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<tbody>
<tr>
<td>Airfare Alexander Murray</td>
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<tr>
<td>Airfare Nabeil Salama</td>
<td>2,750</td>
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<tr>
<td>Lodging Alexander Murray</td>
<td>795</td>
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<tr>
<td>Lodging Nabeil Salama</td>
<td>795</td>
</tr>
<tr>
<td>Per Diem Alexander Murray</td>
<td>367</td>
</tr>
<tr>
<td>Per Diem Nabeil Salama</td>
<td>367</td>
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<tr>
<td>Organization and management expenses</td>
<td>7,292</td>
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<td><strong>Total</strong></td>
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### EXPENSES LIA MORFUN
US$ (1US$ = 480 CLP)

<table>
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<tbody>
<tr>
<td>Airfare Ian Salter</td>
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<td>Per Diem Ian Salter</td>
<td>1,040</td>
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<td>Airfare Fabien Joux</td>
<td>3,300</td>
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<td>Per Diem Fabien Joux</td>
<td>625</td>
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<td>Logistical support Symposium UV radiation</td>
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<td><strong>TOTAL</strong></td>
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### EXPENSES UNIVERSITY OF CONCEPCION, VICE RECTORY OF RESEARCH AND DEVELOPMENT
US$ (1US$ = 480 CLP)

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<td>Airfare Miguel Rivas</td>
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<tr>
<td>Lodging Miguel Rivas</td>
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<tr>
<td>Lodging Ernesto Gramsch</td>
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<tr>
<td>Coffee Breaks – all courses</td>
<td>2,708</td>
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<td><strong>TOTAL</strong></td>
<td><strong>3,604</strong></td>
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## EXPENSES PARTNERSHIP FOR OBSERVATION OF THE GLOBAL OCEANS, POGO (1 US$ = 477 CLP)

<table>
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<tr>
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<th>Amount (US$)</th>
<th>Course (s)</th>
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<tr>
<td>Students Fellowships</td>
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<tr>
<td>Lodging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Javier Rabellino</td>
<td>Uruguay</td>
<td>231</td>
<td>Circulación y masas de agua en el Atlántico Sudoccidental</td>
</tr>
<tr>
<td>Evangelina Garavento / Maria Luiza Fontes</td>
<td>Argentina / Brazil</td>
<td>377</td>
<td>Circulación y masas de agua en el Atlántico Sudoccidental</td>
</tr>
<tr>
<td>Catarina Cecilio / Melissa Carvalho</td>
<td>Brazil / Brazil</td>
<td>453</td>
<td>Circulación y masas de agua en el Atlántico Sudoccidental</td>
</tr>
<tr>
<td>Ana Laura Pita / María Noé Espinosa</td>
<td>Uruguay / Uruguay</td>
<td>377</td>
<td>Circulación y masas de agua en el Atlántico Sudoccidental</td>
</tr>
<tr>
<td>Ana Laura Pita</td>
<td>Uruguay</td>
<td>323</td>
<td>Trace metals in the oceanic carbon cycle</td>
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<tr>
<td>Nicolás Sánchez</td>
<td>Chile (Valparaíso)</td>
<td>231</td>
<td>Coastal Antarctic ecosystems and the case of the Larsen Ice Shelf System</td>
</tr>
<tr>
<td>Paula Cossi / María Carolina Ribeyro</td>
<td>Argentina / Brazil</td>
<td>377</td>
<td>Coastal Antarctic ecosystems and the case of the Larsen Ice Shelf System</td>
</tr>
<tr>
<td>Oralis Alburquerque / Mayelin Carmenate</td>
<td>Cuba / Cuba</td>
<td>830</td>
<td>Trace metals in the oceanic carbon cycle- Chemical &amp; biological characteristics in the oceanic phosphorus cycle / Análisis de series de tiempo en ecología y oceanografía</td>
</tr>
<tr>
<td>Jorge Nath / Carlos Quispe</td>
<td>Ecuador / Peru</td>
<td>906</td>
<td>Análisis de series de tiempo en oceanografía y ecología</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------</td>
<td>-----</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Germán Pérez</td>
<td>Uruguay</td>
<td>231</td>
<td>Chemical and biological characteristics of the oceanic phosphorus cycle</td>
</tr>
<tr>
<td><strong>Students Fellowships</strong></td>
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<tr>
<td>Airfare support</td>
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<td></td>
</tr>
<tr>
<td>Maria Luiza Fontes</td>
<td>Brazil</td>
<td>201</td>
<td>Circulación y masas de agua en el Atlántico Sudoccidental</td>
</tr>
<tr>
<td>Paula Cossi</td>
<td>Argentina</td>
<td>252</td>
<td>Coastal Antarctic ecosystems and the case of the Larsen Ice Shelf System</td>
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<tr>
<td><strong>Students Fellowships</strong></td>
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<td>Food expenses</td>
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<tr>
<td>Antonela Messina</td>
<td>Chile (Punta Arenas)</td>
<td>51</td>
<td>Coastal Antarctic ecosystems and the case of the Larsen Ice Shelf System</td>
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<tr>
<td><strong>Students Fellowships</strong></td>
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<td>Local transportation</td>
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<tr>
<td>All students</td>
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<td>160</td>
<td>All courses</td>
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</table>
- UNIVERSITY OF CONCEPCION, Tuition fee ASI XIII (1US$ = 477 CLP)

<table>
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<th>Item</th>
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<tbody>
<tr>
<td>Students Fellowships Lodging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Javiera de la Paz</td>
<td>Chile (Santiago)</td>
<td>377</td>
<td>Why do diseases emerge in marine aquaculture? And what can we do to limit this?</td>
</tr>
<tr>
<td>Verónica Ruiz / Guillermina Ruiz</td>
<td>Ecuador / Argentina</td>
<td>906</td>
<td>Análisis de series de tiempo en oceanografía y ecología</td>
</tr>
<tr>
<td>Felipe Da Costa</td>
<td>Brazil</td>
<td>553</td>
<td>Análisis de series de tiempo en oceanografía y ecología</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
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<td><strong>1,836</strong></td>
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</table>

- EXPENSES FULBRIGHT COMMISSION – CHILE US$ (1US$ = 480 CLP)

<table>
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<td>Airfare Maria Vernet</td>
<td>1,607</td>
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<tr>
<td>Honorarium Maria Vernet</td>
<td>2,800</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>4,407</strong></td>
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</table>
2. **Conferences and Meetings**

**Modelling: How does it help us understand aquatic animal health?**

Date: Wednesday, January 9\textsuperscript{th} 2013  
Venue: Faculty of Natural and Oceanographic Sciences, Campus University of Concepcion  
Speaker: Dr. Alexander Murray, Marine Scotland Science, Scotland

**El destino de las aguas del Plata: viento, descarga continental y las corrientes de borde oeste del Atlántico Sudoccidental**

Date: Thursday, January 10\textsuperscript{th} 2013  
Venue: Faculty of Natural and Oceanographic Sciences, Campus University of Concepcion  
Speaker: Lic. Alberto Piola, Servicio Hidrográfico de la Armada, Argentina

**LARISSA, the LARsen Ice Shelf System: Integrating biology, geology and glaciology to understand abrupt environmental changes in coastal Antarctica**

Date: Wednesday, January 16\textsuperscript{th} 2013  
Venue: Faculty of Natural and Oceanographic Sciences, Campus University of Concepcion  
Speaker: Dr. María Vernet, Scripps Institution of Oceanography, United States

### EXPENSES EMBASSY OF FRANCE IN CHILE US$  (1US$ = 480 CLP)

<table>
<thead>
<tr>
<th>ITEM</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Lodging Gabriela Campana</td>
<td>372</td>
</tr>
<tr>
<td>Lodging Edgardo Henríquez</td>
<td>372</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>744</strong></td>
</tr>
</tbody>
</table>
Iron biogeochemistry in (sub-) polar regions

Date: Thursday, January 17th 2013

Venue: Faculty of Natural and Oceanographic Sciences, University of Concepcion

Speaker: Dr. María Nielsdóttir, National Oceanographic Center Southampton, United Kingdom

The importance of species diversity for regulating biogeochemical fluxes: Insights from the biological carbon pump

Date: Monday, January 21st 2013

Venue: Faculty of Natural and Oceanographic Sciences, University of Concepcion

Speaker: Dr. Ian Salter, Observatoire Oceanologique de Banyuls-sur-mer, France

3. Missions / Travels abroad

Destination; Purpose; Duration; funding sources; Outputs

* None

4. Visiting professors / Fellowships

Number; Duration; University of origin; funding sources

a. As reported in section III

5. Information and documentation activities

* Web page: www.udec.cl/oceanoudec/oceanografia

* Multimedia material (n/a)

* Poster ASI XII (Attachment 1)

* Course Reports by Lecturers (Attachment 2)

IV. Impact

Please describe shortly (one page maximum) the impact of the mentioned activities on the human, social, economic and cultural development at national, regional or international level.

Almost one hundred students were trained in specialized aspects of oceanography this year at the Austral Summer Institute of the UNESCO IOC Chair in Oceanography. Since this inception, the Chair was devoted to building capacity at the graduate level in the region and we will continue with. The success of the
activity is shown first of all by the number of applications received, the interest shown by the student participants, and the willingness of renowned scientists worldwide to spend time with students of the South-American region. This has resulted in the first interaction of future scientists with senior researchers that has opened up opportunities for graduate studies.

V. **Forthcoming activities**

The Chair will continue developing the Austral Summer Institute (ASI) at University of Concepción with the possibility of integrating this activity with those of Campus do Mar. Campus do Mar is a project lead by Universidad de Vigo and sponsored by the three Galician universities, the Spanish Council of Scientific Research (CSIC) and the Spanish Institute of Oceanography. This could mean replicating the Austral Summer Institute in Spain and Chile.

VI. **Development prospects**

Please see Forthcoming activities above

**Annex 1**

**Target groups**

Undergraduate students: 18

M.Sc.: 19

M.Sc. Students: 16

PhD Students: 21

PhD: 13

Professionals: 11
Annex 2

Geographical Coverage

• National

(Includes international graduate students at University of Concepcion): 73

• Regional

Please specify countries and regions

Africa

Arab States

Asia/Pacific

Eastern and Central Europe

Western Europe and North America: (France and Canada) 2

Latin America: (Argentina, Brazil, Ecuador, Colombia, Cuba, Peru, Uruguay): 23

• Interregional

Please specify regions

• International
# Annex 3

## Funding Sources

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Type of Organization/Institution</th>
<th>Period</th>
<th>Amount (US$)</th>
</tr>
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<tbody>
<tr>
<td>UNESCO Contribution</td>
<td></td>
<td>April 2012 /January 2013</td>
<td>0</td>
</tr>
<tr>
<td>Other Contributions:</td>
<td>Host Institution Graduate School UDEC</td>
<td>May 2012 /January 2013</td>
<td>10,194</td>
</tr>
<tr>
<td></td>
<td>Host Institution School of Natural and Oceanographic Sciences, UDEC</td>
<td>April 2012 /January 2013</td>
<td>1,929</td>
</tr>
<tr>
<td></td>
<td>Host Institution Department of Oceanography, UDEC</td>
<td>December 2012 /January 2013</td>
<td>1,755</td>
</tr>
<tr>
<td></td>
<td>Host Institution COPAS Sur-Austral, UDEC</td>
<td>April 2012 /January 2013</td>
<td>15,554</td>
</tr>
<tr>
<td></td>
<td>LIA MORFUN</td>
<td>October 2012</td>
<td>9,265</td>
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<tr>
<td></td>
<td>Partnership for Observation of the Global Oceans (POGO)</td>
<td>January 2013</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>Own resources, tuition fee</td>
<td>January 2013</td>
<td>1,836</td>
</tr>
</tbody>
</table>
The Austral Summer Institute XII collected US$ 3,000 from tuition paid by 12 students. Funds are in a dedicated account (UNESCO Chair) administered by the School of Natural Sciences and Oceanography.
Annex 4 (N/A)

Outputs Form 1: Publication

Title of activity: ________________________________________
Title: Author(s) Publisher(s) Year
Number of pages
Type of document/material
Book
Periodical
 Others (specify, please) ________________
Teaching / learning material
Language(s) ______________________________
Main keywords (4 or 5)
SHORT ABSTRACT
(Brief description of the content in English, French or Spanish)

Annex 5 (N/A)

Outputs Form 2: Multimedia material
Title of Activity:
Title:
Producer and/or distributor (with address):
Year:
Teaching/learning material
Type of material:
Video
CD ROM
Videoconference
Other type of material
(Please specify): ______________________________
Duration:
Format:
Language(s):
Main keywords (4 or 5):