SEPTEMBER 2015

"LINC"

Learning about Interacting Networks in Climate

Goals

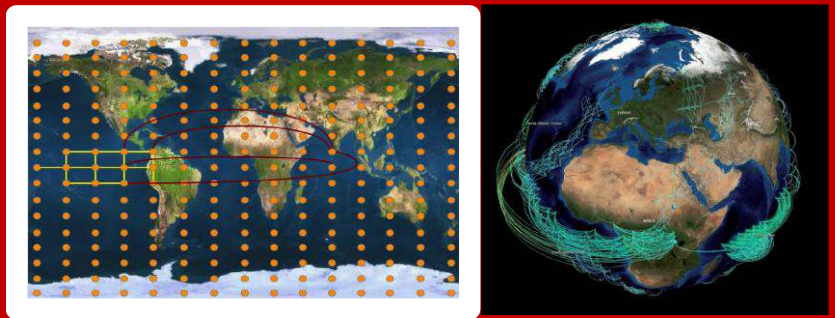
LINC is a Marie Curie **Initial Training Network** funded by the European Union FP7 Program, aimed at training 15 young researchers in the complete set of skills required to investigate the Earth climate from a complex systems perspective.

Challenges

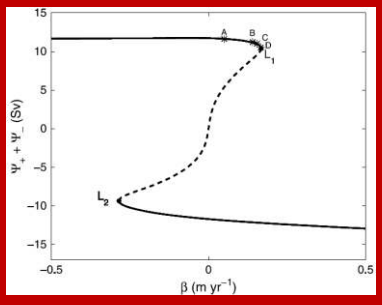
Advancing our understanding of the complex dynamics of our climate requires developing new approaches for climate data analysis; **the training of the new generation of experts** requires bringing together an **interdisciplinary team** of partners with complementary expertise in complex systems, geosciences (climatology, oceanography), data analysis, statistics and high-performance computing.

Vision

Applying the network approach and nonlinear analysis tools can yield **new insight into complex climate phenomena** (such as El Niño), which have huge socio-economic impacts world-wide. LINC results could lead to **improved climate predictions**, crucial for developing adequate mitigation and adaptation strategies.



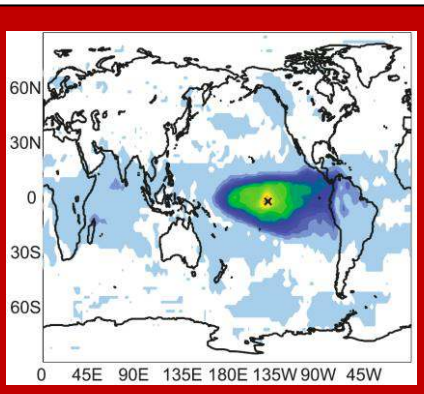
Climate networks are constructed over a regular grid of nodes by inferring climate similarities, interdependencies and interactions from observed data.



Atlantic Meridional Overturning Circulation (AMOC): within LINC, network-based indicators were developed for early-warning of AMOC collapse.

Results

12 PhD students and 3 young postdoctoral researchers received top-quality training that included the participation in two schools, four workshops and research stays in the networks partners. A final Conference on Complex Networks and Climate Variability was organized (Vienna, Austria, April 2015), with the participation of world-recognized experts. Several LINC students presented their results in the conference. Three students have finished their PhD theses and several theses are scheduled for the next months. A **database and analysis software** have been developed, which can be freely downloaded from the project website. The LINC results were published in **numerous articles** (many of them, open access) which are listed in the project website. **Videos and training material** can also be freely downloaded from the website.



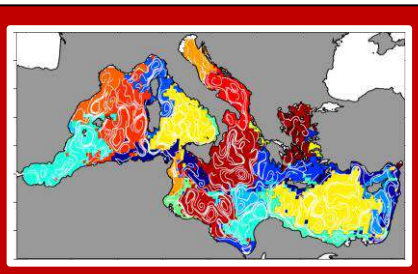
El Niño teleconnections: the color code indicates the strength of the links.

Conference on Complex Networks and Climate Variability

Organization and Consortium

The LINC project is organized in five scientific work packages (**WP1: Network Construction and Analysis, WP2: Interacting Networks, WP3: Natural Climate Variability, WP4: Future Climate Change, and WP5: Tipping Points in the Climate System**) and one management work package. The consortium consists of 6 academic partners and 3 companies in five countries:

1. **UPC** - Universitat Politècnica de Catalunya (Spain)
2. **PIK** - Potsdam Institute for Climate Impacte Research (Germany)
3. **BIU** - Bar-Ilan University (Israel)
4. **UU** - Utrecht University (The Netherlands)
5. **UY**- Universidad de la Republica (Uruguay)
6. **UIB** - Universitat de les Illes Balears (Spain)
7. **CRA** - Climate Risk Analysis (Germany)
8. **AMB** - Ambrosys (Germany)
9. **VOR** - Vortech (The Netherlands)



Flow networks give information on the sea currents that shape our climate, as in this example from the Mediterranean

Read more: climatelinc.eu