

Outcomes from the RICAP network for the future collaboration between Europe and Latin America in HPC

3rd Workshop on HPC Collaboration
between Europe and Latin America

Cuenca, 11 September 2020

- **The network**
 - Objectives
 - Partners
- **Achievements**
- **Outcomes and impact**
- **Conclusions and RICAP future**

- **Red Iberoamericana de Computación de Altas Prestaciones**
 - Ibero-American HPC Network
 - Coordinated with other initiatives such as SCALAC / RedCLARA
- **Co-funded by the Programa Iberoamericano de Ciencia y Tecnología para el Desarrollo (CYTED)**
- **4-year lifetime (2017-2020)**

RICAP: Partners



* Joined the Network after Jan 2017



CADING*

RED CYTED | Computación de Alto Desempeño en Ingeniería



UBA*
Universidad de Buenos Aires
Argentina virtus robur et studium

RICAP: Partners



Green = Partner
Grey = Collab.

Objectives

- **Provide the Region with an strategic HPC & HTC infrastructure**
 - HPC (periodic access calls)
 - HTC (24x7 cloud infrastructure)
- **Training and capacitation**
 - On-site
 - On-line
- **Dissemination and outreach**
- **Collaboration**

RICAP entry point

- **Website**
 - <http://www.red-ricap.org/>
 - E-mail contact address ricap@ciemat.es
 - Promotion of CYTED in social networks
 - **#RICAP** hashtag
- **Available information**
 - Institutional
 - HPC and HTC infrastructure and ways for accessing them
 - Events
 - Training material
 - Dissemination and outreach material
 - Etc.

Achievement: RICAP website



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Home icon, Mail icon, Search icon, Language selector (ES, EN), and a search input field with the text 'Buscar...' and a search button.

- [PRESENTACIÓN](#)
- [SOBRE NOSOTROS](#)
- [INFRAESTRUCTURA](#)
- [EVENTOS Y CURSOS](#)
- [DESCARGAS](#)
- [PARTICIPA](#)

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PROYECTO RICAP

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Achievement: Computational offer

- **The RICAP computational offer is composed of different resources provided by their members**
 - A summary available at the website
- **Composed of**
 - HTC (cloud), 24x7 access and lower computational power
 - HPC, to be accessed by periodic ompetitive calls with higher computational power
- **The access is free!!**
 - It follows the strategy coming from PRACE and others

Achievement: Computational offer

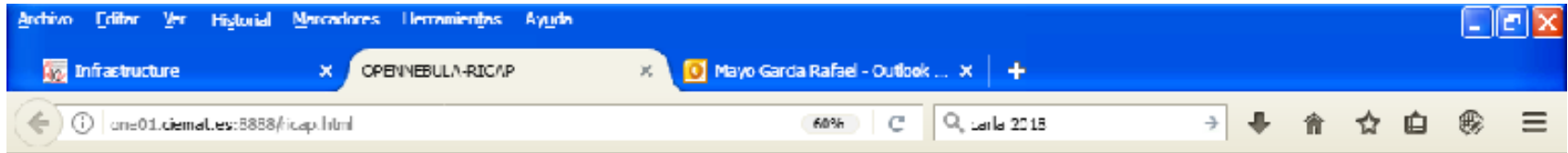
- **Results from the HPC calls**
 - There are detailed reports at the website

	Groups	CPU hours	GPU hours
2017	6	210,000	
2018	9	1,000,000	10,000,000
2019 (x2)	15	4,879,000	17,250,000
2020 (x2)	18*	4,446,000	20,000,000
TOTAL	48	10,535,000	47,250,000

* Humanities included

Achievement: Computational offer (cloud)

<http://one01.ciemat.es:8888/ricap.html>



ACCESO A LOS NODOS DE LA INFRAESTRUCTURA EN LA NUBE RICAP




Super Computación y
Cálculo Científico UIS



CONICET



Achievement: Computational offer (cloud)



Dashboard

oneadmin | nodo-es

- Dashboard
- Instances
- Templates
- Storage
- Network
- Infrastructure
- System
- Settings

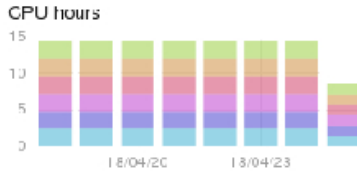
Support
Not connected

Sign in

OpenNebula 5.4.0
by OpenNebula Systems.

VMs 8 ACTIVE 6 PENDING 0 FAILED 0 + -

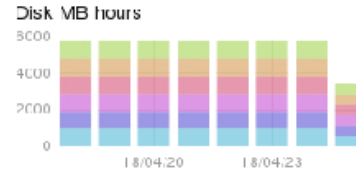
CPU hours



Memory GB hours



Disk MB hours



Hosts 41 ON 1 OFF 8 ERROR 32 + -

Allocated CPU

80 / 19400

Allocated Memory

1GB / 369GB

Real CPU

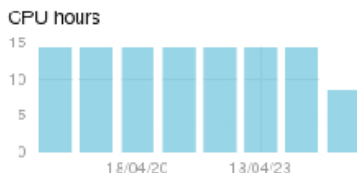
304 / 19400

Real Memory

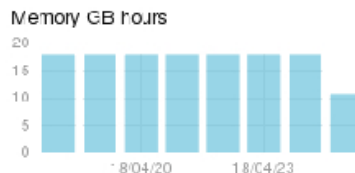
31.4GB / 369GB

Users 0 + -


CPU hours



Memory GB hours



Disk MB hours



Achievement: dissemination and outreach

- **Training material (~60 links)**
 - Theory, hands-on and videos
 - Libraries (MPI, OpenMP, OpenACC, CUDA, Python, performance tools, etc.)
 - Computer Science (scheduling, migration of tasks, etc.)
 - Artificial intelligence
- **Network templates and reports**
 - HPC calls, website stats, etc.
- **News**
 - About the network, external events, etc.
- **2 MoU**
 - RedCLARA & CADIng

Achievement: dissemination and outreach

- **RICAP presentations (19)**

- TICAL 2017
- Reunión IP CYTED 2017
- ISUM 2018
- ISC-HPC 2018
- Reunión IP CYTED 2018
- CARLA 2018
- SC'19 (BoF)
- Reunión IP CYTED 2019
- TICAL 2020
- 3rd Workshop on HPC Collaboration Between EU and LA
- CARLA 2017
- SC'17 (BoF)
- Día Virtual CLARA (04/18)
- TICAL 2018
- 5° Encuentro LA Física
- ISUM 2019
- SIGESTIC 2019
- CARLA 2019
- CARLA 2020

- **Publications about RICAP (5)**

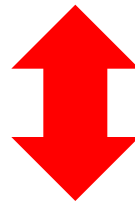
- Actas TICAL, 525–534 (2017)
- Actas TICAL, 131–140 (2018)
- Computing Science & Engineering **20**, 39–48 (2018)
- Vértices **31**, 37–39 (2019)
- Actas TICAL, pp–pp (2020)

Achievement: Capacitation

- Participation in HPC schools (13)
 - 2017
 - ECAR (Ar), Curso cloud (Es)
 - 2018
 - Día Virtual CLARA, Escuela HPC UIS (Co), TICAL 2018 (Co), CARLA 2018 (Co), TICEC 2018 (Ec)
 - 2019
 - CeNAT-CNCA (Cr), Escuela Veranillo HPC (Cr), SC-CAMP (Es), Udelar (Ur), ICTP-SAIFR (Br)
 - 2020
 - CARLA 2020

Main achievements

- **Theses (16)**
 - 5 PhD, 3 MSc, and 8 BSc
- **Publications acknowledging RICAP (58)**
 - And most of 2020 and 2021 are still missing...
- **Participation in GEANT & RedCLARA ‘Enlighten your research’**



This is the real RICAP impact!!

Paving the future for the EU-LATAM collaboration

- **RICAP will not offer access to their resources from now on, but it will keep on funding training and mobility activities in 2021**
 - E-mailing external users to promote continuous collaboration with RICAP groups
- **SCALAC-RedCLARA agreement for the provision of HPC resources through the NRENs**
 - Collaborations already set up with SINAPAD-Brasil, RedMexSU-México, and LaRedCCA-Colombia

Paving the future for the EU-LATAM collaboration

- **Participation in H2020**
 - ‘ResInfra EU-CELAC’ project
 - On-going project running from 2019 to 2022
 - Promotion of the collaboration between EU and CELAC infrastructure → RICAP acts as one of the pilots
 - Red Iberoamericana de Supercomputación (RISC2)
 - Proposal already submitted coordinated by BSC-CNS
- **Desarrollos en Iberoamérica de Inteligencia Artificial (DIbInA)**
 - 2020 CYTED Thematic Networks Call
- **Participation in HEU.. Sure!!!!**

Thank you!!!

**Red Iberoamericana de Computación de Altas
Prestaciones (RICAP)**

<http://www.red-ricap.org>

RICAP is partially funded by the Ibero-American Program of Science and Technology for Development (CYTED), Ref. 517RT0529.