Space and Global Health Working Group

Current activities in environmental, vector borne diseases in Argentina.
Identifying strength and weakness

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Gulich Institute

Higher Education, Interdisciplinary Research and Social Impact

IG Mision

To train Human Resources at postgraduate level on the theory, concepts and techniques of science and technology applied to the remote sensing of the earth, oceans and atmosphere. **Through research and development activities, innovation and transfer.**

Research Lines:
- Landscape Epidemiology
- Monitoring and modelling of Environmental Markers (Water and Air)
- Biodiversity and ecosystem services
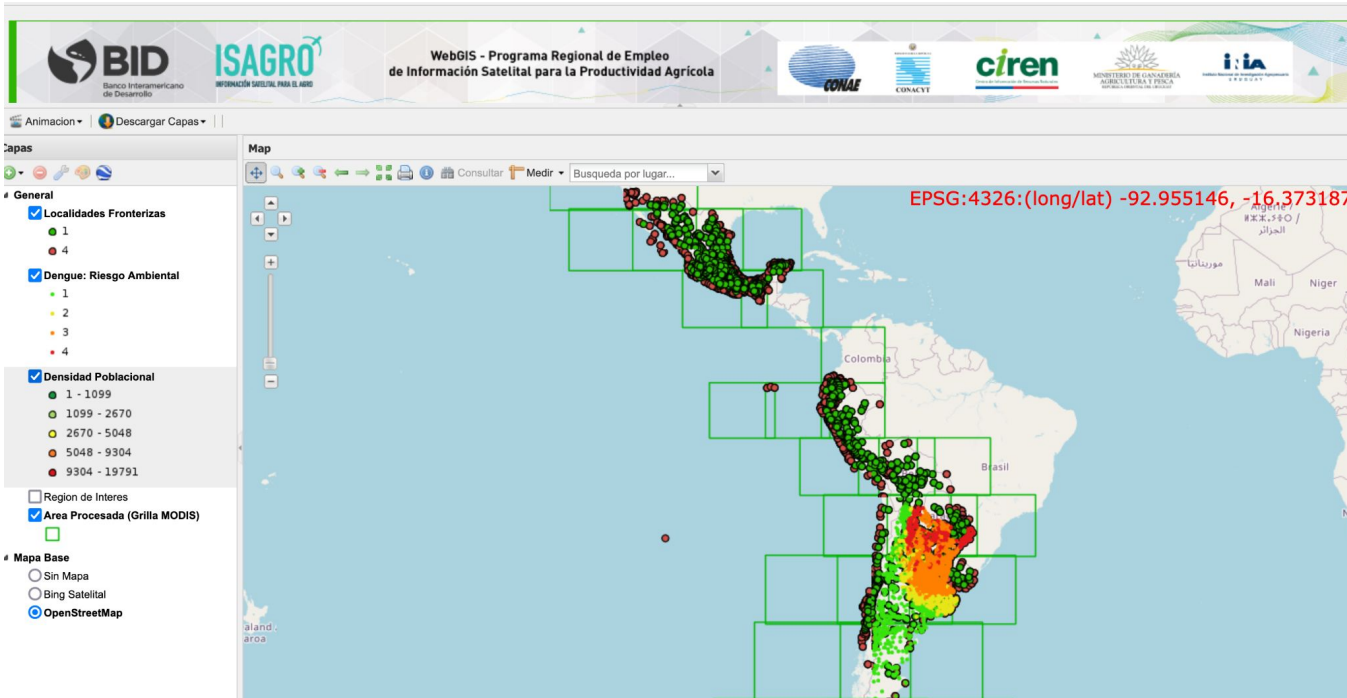- Agriculture and food safety
- Early Warning and Emergencies

Foster Institutional collaboration

https://ig.conae.unc.edu.ar/

Tools for sharing knowledge: development and transfer

SIRIS Project: retrieve/develop spatial data on social determinants, population movement, climate, land cover change, vector modelling.


Dengue Show meaningful variables through a **web server**.

Chile, Argentina and Paraguay

http://www.isagro.org.ar/

# Collaborative innovation and transfer project with state partners: DETEM Project:City level monitoring for *A. aegypti*

1) Produce a **mathematical prediction** of A. aegypti populations (density) based on RS data
2) Develop a system **to geo-locate and collect weekly field data** (**Mobile-App**). And Visualize it in web-server

https://detveccba.gri.conae.gov.ar/login/
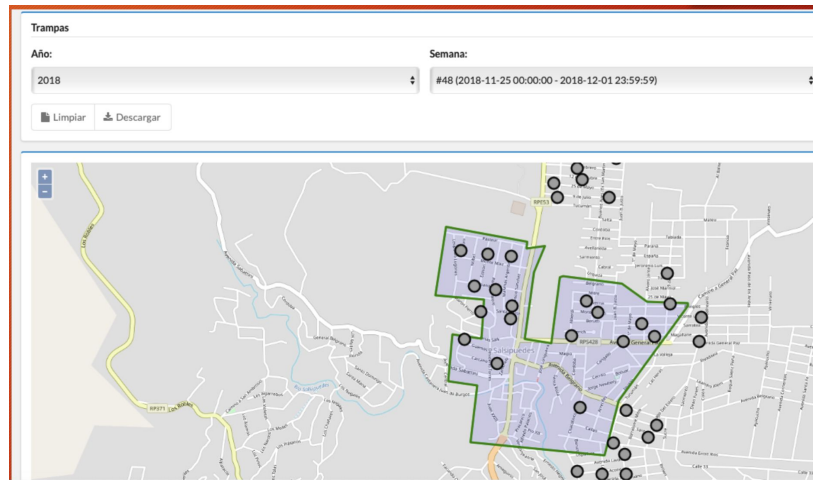
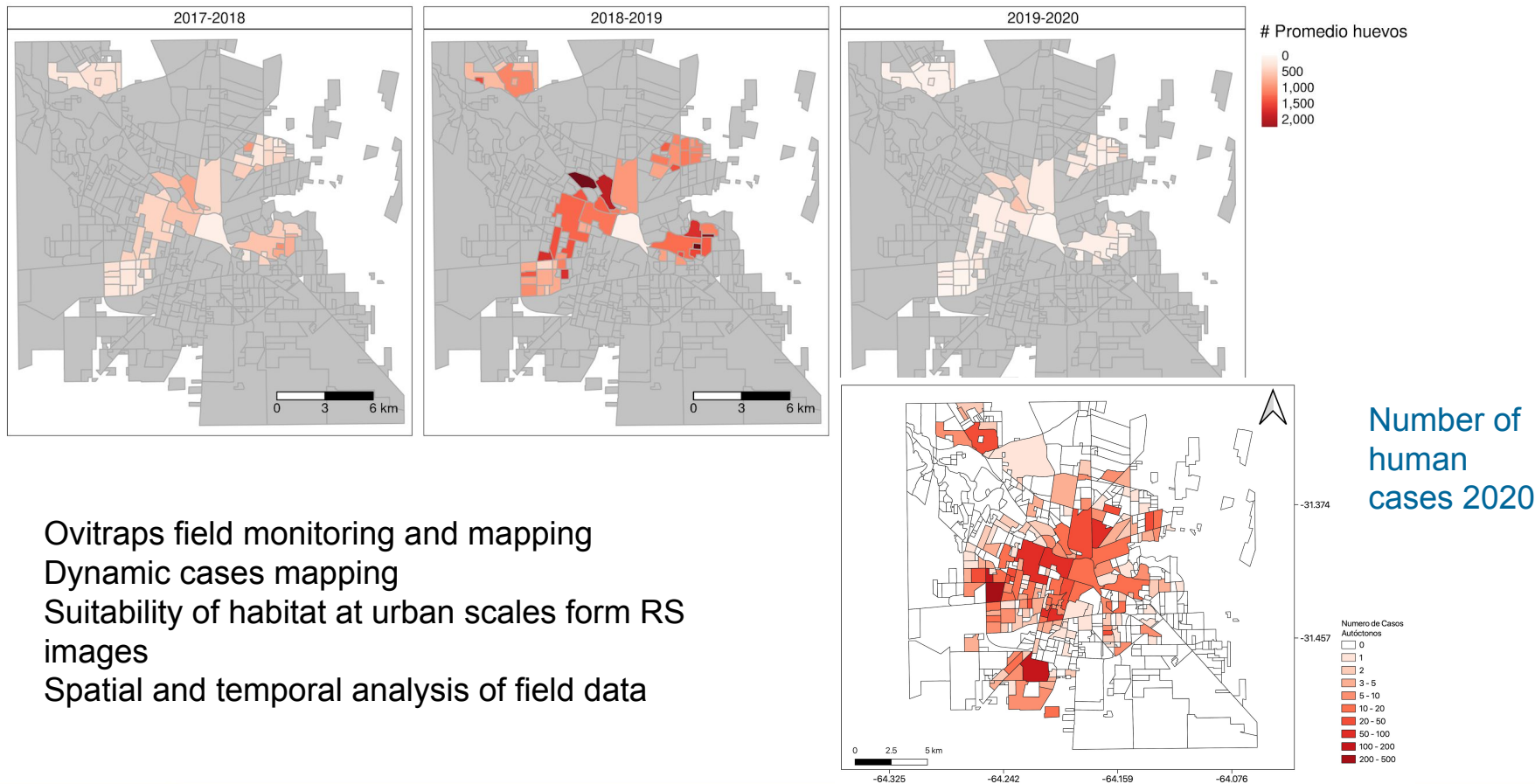# A e. populations dynamic predictive model based on RS and Forecast data (NOAA,

Cordoba
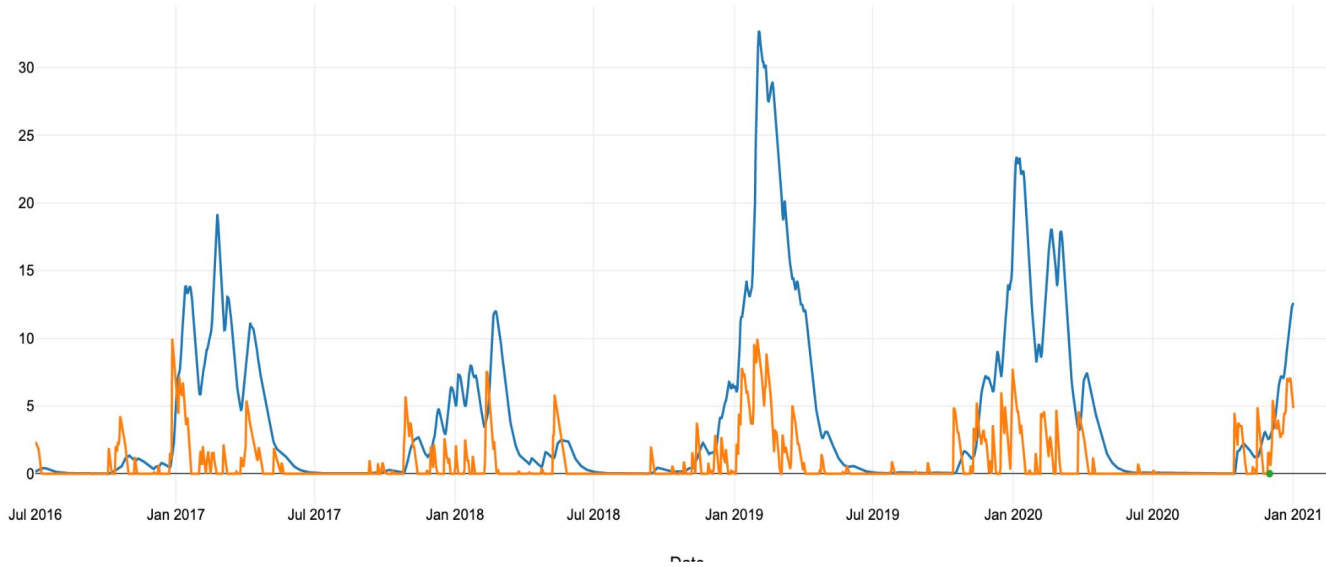
Adult a. aegypti
Water content in containers

Aguirre et. al.. Ecological Informatics (September)
Implementation of a proactive system to monitor Aedes aegypti populations using open access historical and forecasted meteorological data.

Other RS or spatial applications at city level (with Provincial collaboration)

- Ovitraps field monitoring and mapping
- Dynamic cases mapping
- Suitability of habitat at urban scales form RS images
- Spatial and temporal analysis of field data

Number of human cases 2020

Towards a workflow for an operational mapping of Aedes aegypti at urban scale based on RS
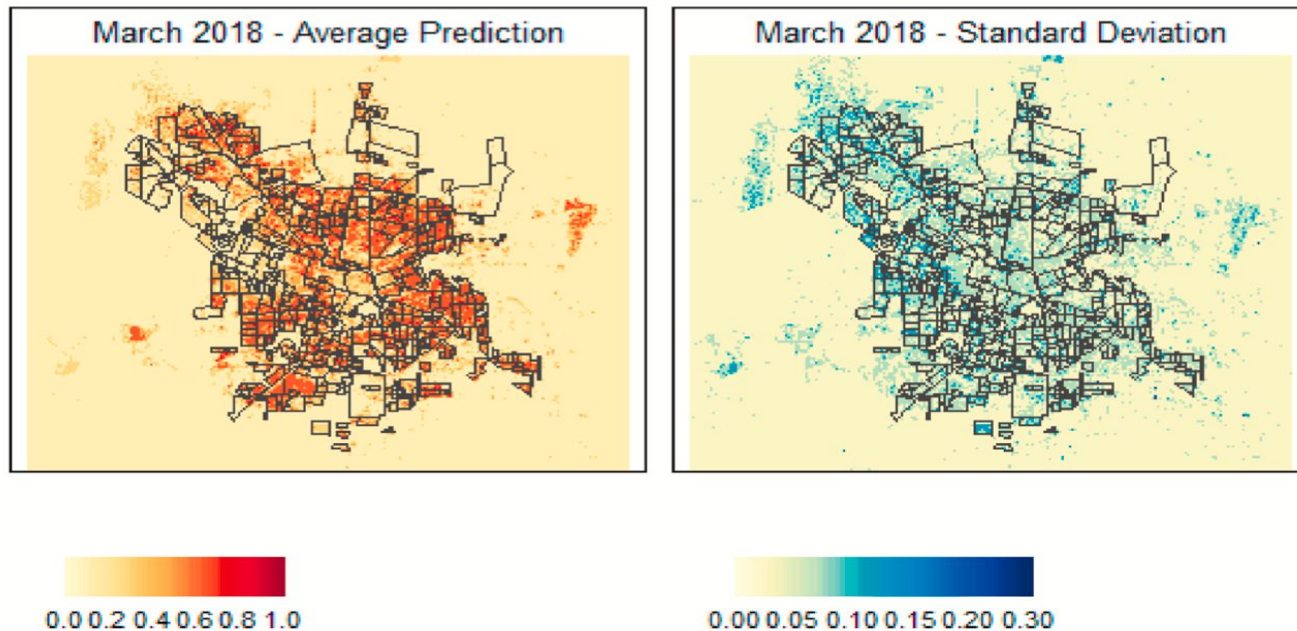
Fig. 3. Average predicted suitability for *Ae. aegypti* in Córdoba city and corresponding standard deviation.

https://authors.elsevier.com/c/1dCnY8M-mmkFl6

National Health system interaction

Chagas: Chagas' Program **needs**: Data collection, geo-reference of rural houses, Vector surveillance maps and indicators, RS variables.

Capacity Building (Workshops and on-line courses in Health Ministery platform)
https://ig.conae.unc.edu.ar/taller-estratificacion-de-riesgo-de-transmision-vectorial-de-la-enfermedad-de-chagas-en-argentina/
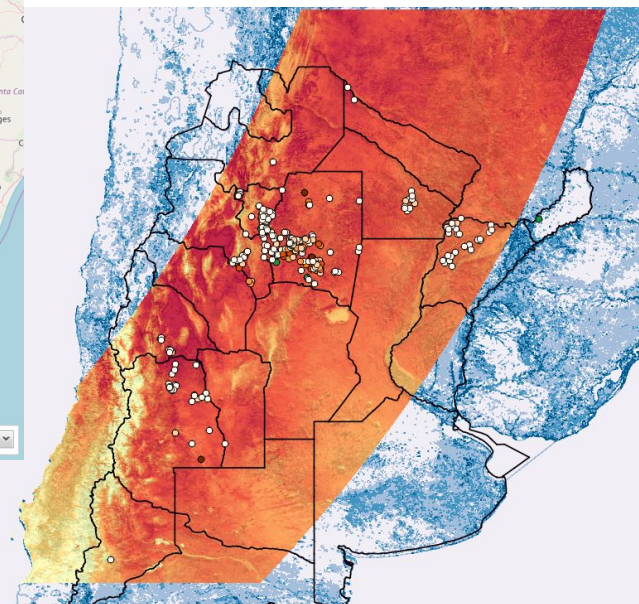
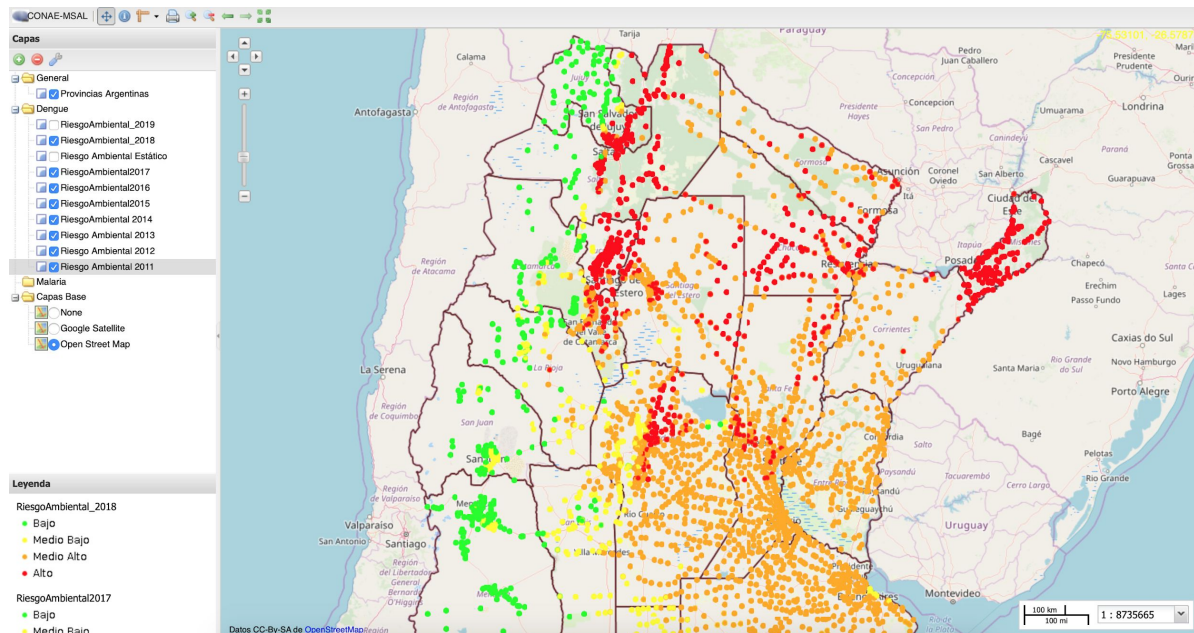Dengue: RS data, Vector modelling, **Web server**.

Climate Change and Vector Borne: Interdisciplinary Research Projects

Social-Environmental stratification for neglected diseases...and other exposures as risk indicators

National Agreements between institutions
Health MInistry (Dengue, Chagas)

Training and capacity building

DGSE

Doctorado en
Geomática y
Sistemas Espaciales

MAIE

Maestría en
Aplicaciones de
Información Espacial

DGA

Diplomatura en
Geomática
Aplicada

Master Degree and **Doctorate** are also running at i. Gulich
Two **scholarship** for each degree are actually open for Latin America student..

In collaboration with Mundo Sano Foundation this Diploma Degree had 61 enrolled students in 2019 (41 fellow by MS).
It is an **on-line course** with (tutors) and, has 4 different modules on RS, GIS and SAR, with a final module on **Health Applications**. Available for Latin-America.

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ONG / (non governmental) interactions

https://www.mundosano.org/en/

> 10 Scientific papers in the last 4 years.

Post-Graduate program in Geo-spatial applications on health

Sig-Web, Modelling platform for Early Warning and research.

Many Thanks!!

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Agr. Cynthia Garay
Biol. Carla Rodriguez Gonzalez

https://ig.conae.unc.edu.ar/feliz-aniversario-instituto/

Strength

- More than 15 years working
- Multiple contacts with health technicians/decision makers (National and Provincial)
- Different workshops focused in real problems in Latin America,
- Focus on social requirement/needs, health requirements.
- Integration with other important topics in Environment and Early Warning (One Health?)
- Increasing post-graduate activities, courses and formal accreditations (on-line capability)
- Well conformed IG community (graduates, professors, researchers)

Hurdles and difficulties

- A few people fully contract for this activities (one)
- Personal communications more than institutional communication
- No formal protocols to share spatial data, different sources/owners of field data (cases, vector control, treatment, etc).
- Still poor knowledge in spatial data in Health System people..
- Poor and discontinued financial support (mainly came from interdisciplinary research projects).

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