RIVeR-LAC

WMO Hydrohub Innovation Workshop on Surface Velocimetry

May 23rd 2025

FCEFyN

INA Instituto Nacional del Agua

orus IT

> *Making Image-Based Velocity a Standard in Our Toolkit !*

SOURCE OF INNOVATION

WORLD METEOROLOGICAL ORGANIZATION · WMO HydroHub · Fundación FEMSA · Ministry of Finance · Ministry of Environment Republic of Korea · THE Coca-Cola FOUNDATION · IDB · IDB Invest · IDB LAB

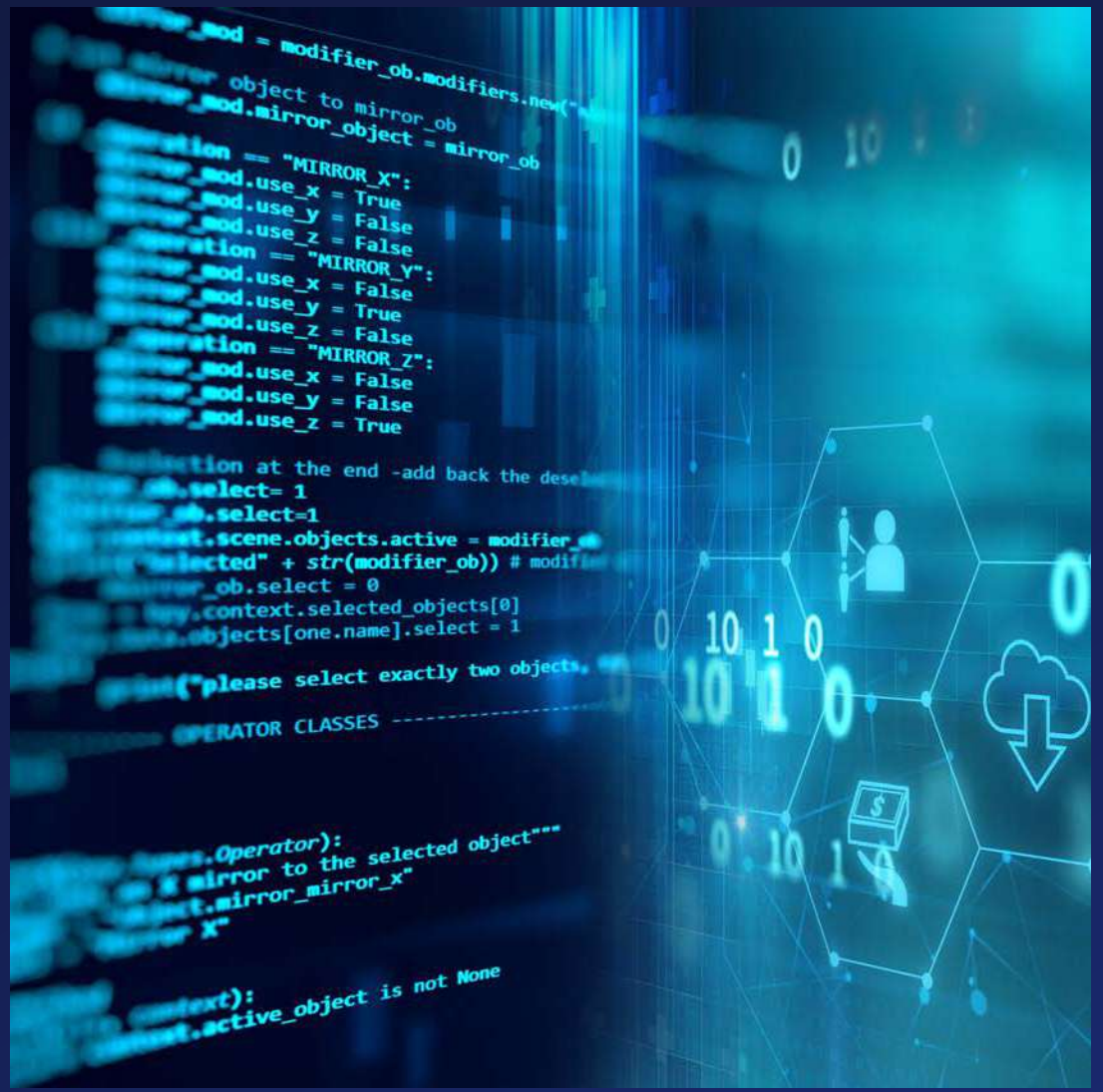
Scope

- User-friendly RIVeR version
- LSPIV best practice guidelines
- LSPIV stations in 2 pilot basins
- LAC training & outreach

Architecture Design

RIVeR

- Python backend
- React frontend for dynamic interface
- CLI for advanced automation
- Step-by-step guided workflow
- Multilingual support



License

RIVeR

- Fosters community collaboration
- Supports commercial use with attribution
- Maintains long-term innovation potential

Workflow

RIVeR

- Three specialized workflows
- Calibration for each footage type
- Multiple X-sections and bathymetry integration
- Basic/advanced processing options
- Automated reporting

Extra Feature

RIVeR

Artificial Seeding

Extra Feature

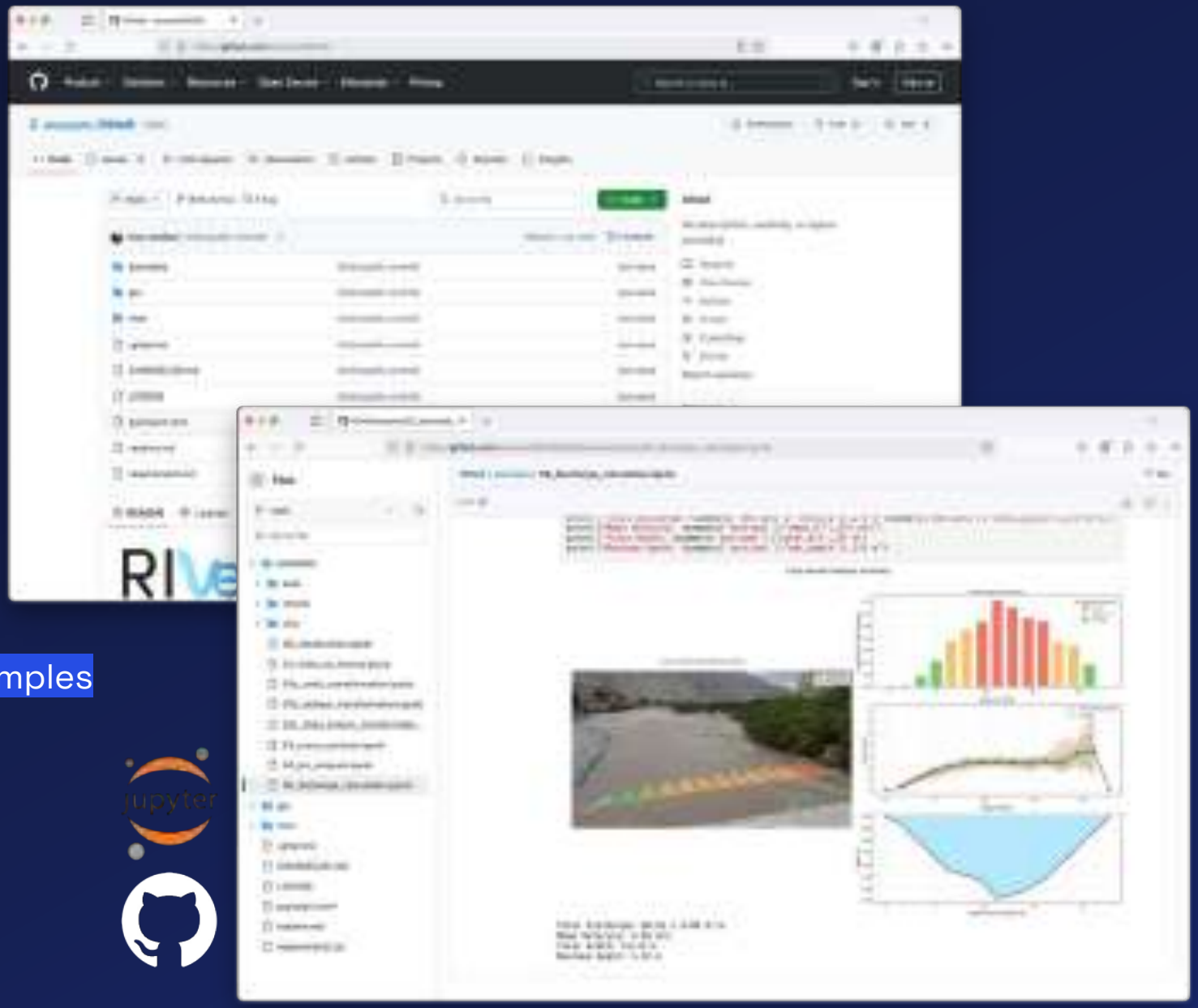
RIVeR

Artificial Seeding

Support

RIVeR

- GitHub README documentation
- Interactive Jupyter notebook examples
- Video tutorials coming (soon)



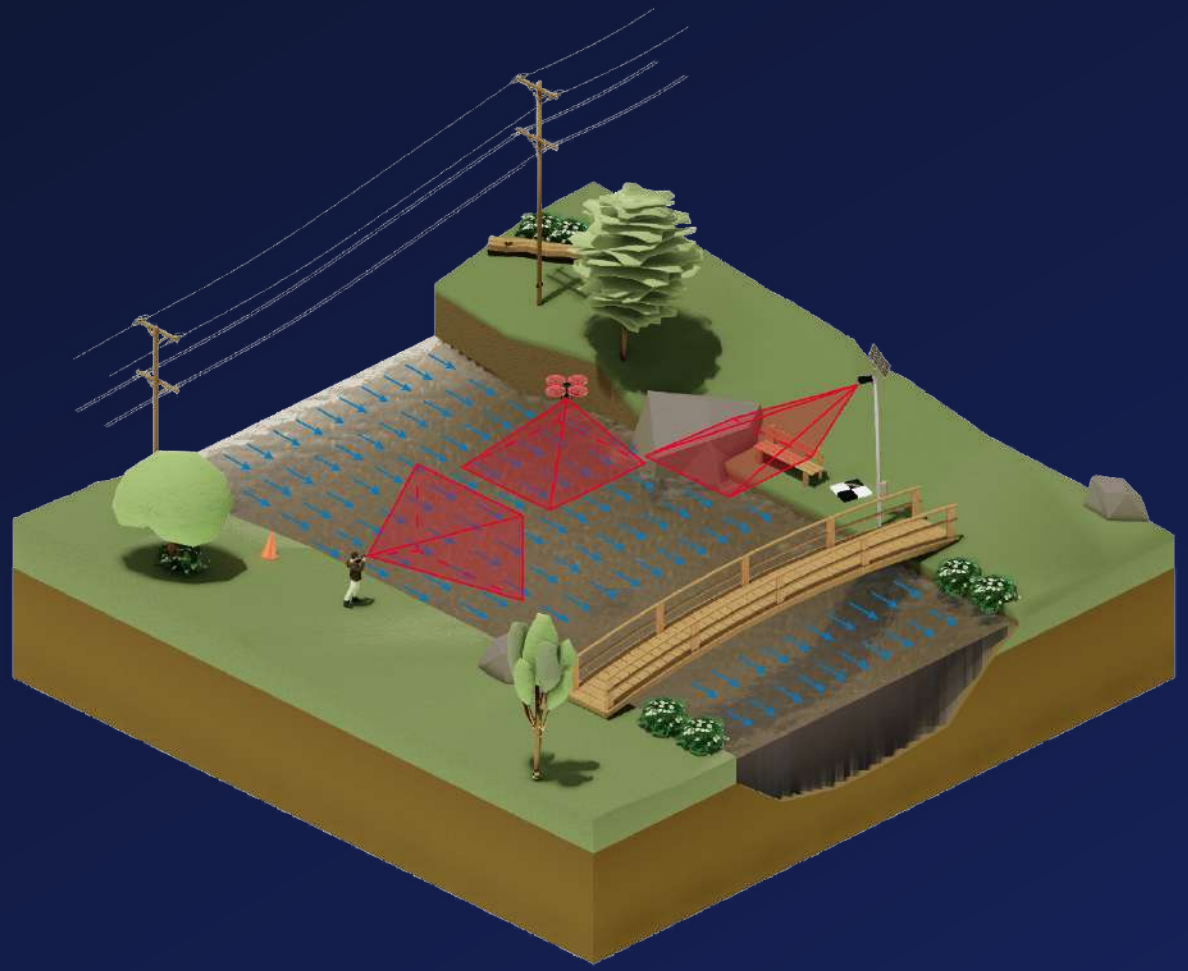
Distribution

RIVeR

Development and Content

Guidelines

- Available in Spanish and English
- Covers LSPIV principles, field/desk best practices
- Accessible to beginners with advanced appendices
- Progressive learning approach



Visual Communication and Design

Guidelines

- Custom 3D visuals for all LSPIV scenarios
- Enhances text with visual learning
- Simplifies complex concepts
- Shows complete workflow
- Improves accessibility

Review Process Implementation

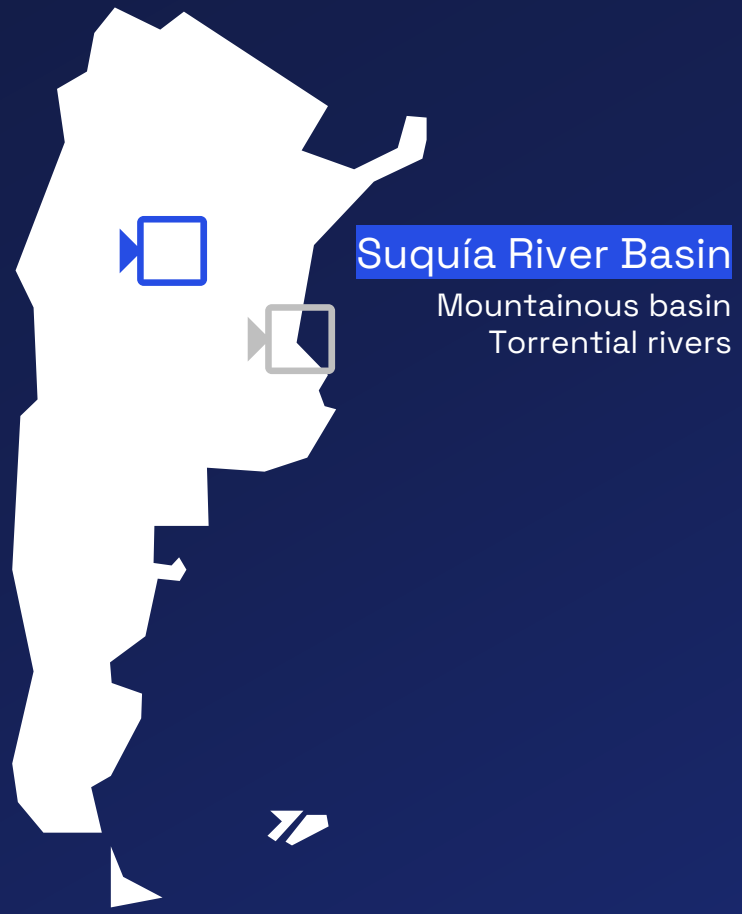
Guidelines

github.com/oruscam/lspiv-guidelines

- GitHub-hosted living document
- Community-driven updates
- Open collaboration model
- Downloadable in PDF format
- Bilingual availability

A Tale of Two Rivers

LSPIV stations



Suquía River Basin

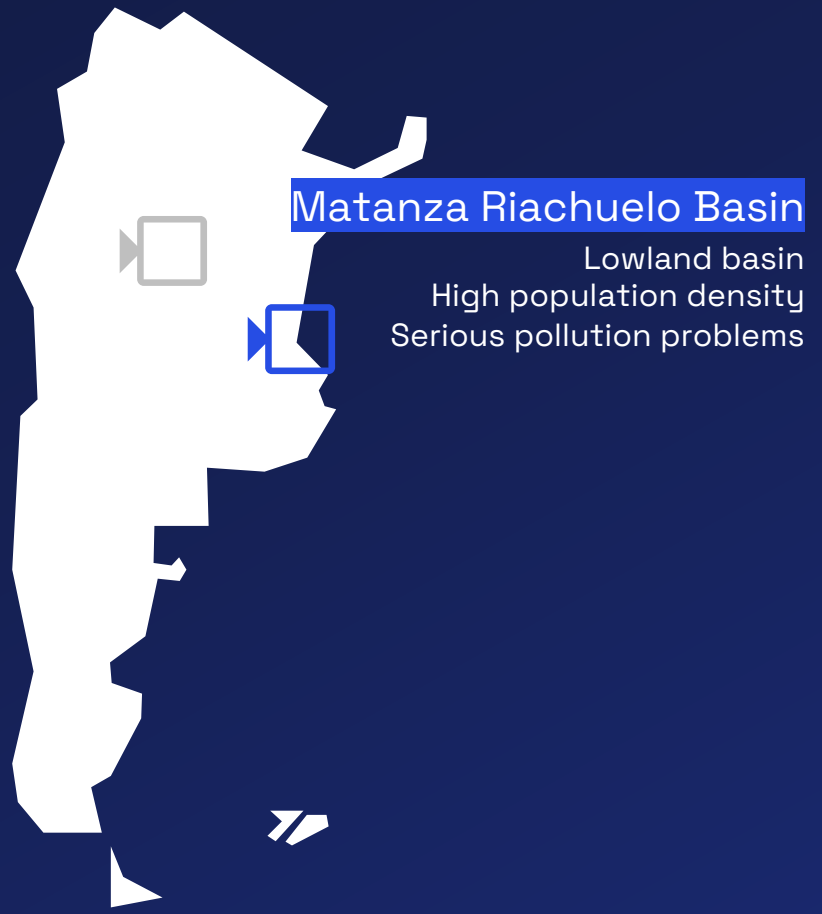
Mountainous basin
Torrential rivers

APRHI
Administración Provincial de
Recursos Hídricos

A Tale of Two Rivers

LSPIV stations

acumar

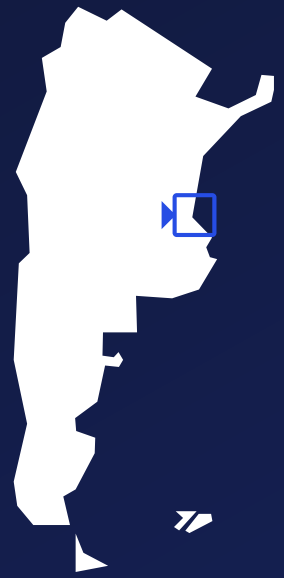


Matanza Riachuelo Basin

Lowland basin
High population density
Serious pollution problems

Installation in Buenos Aires

LSPIV stations



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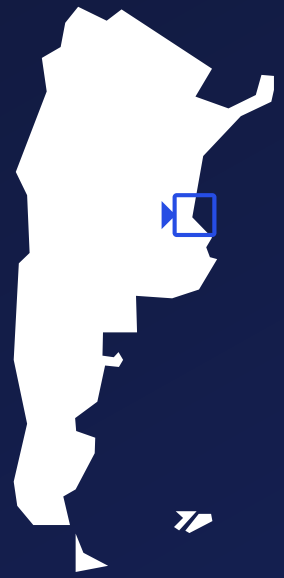
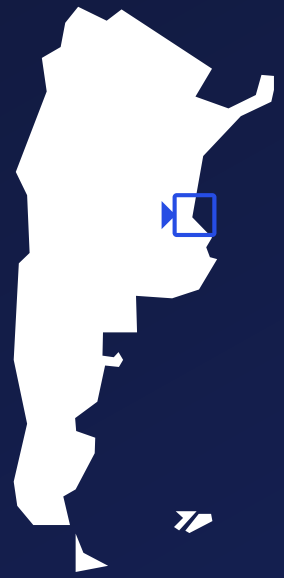
Water Level

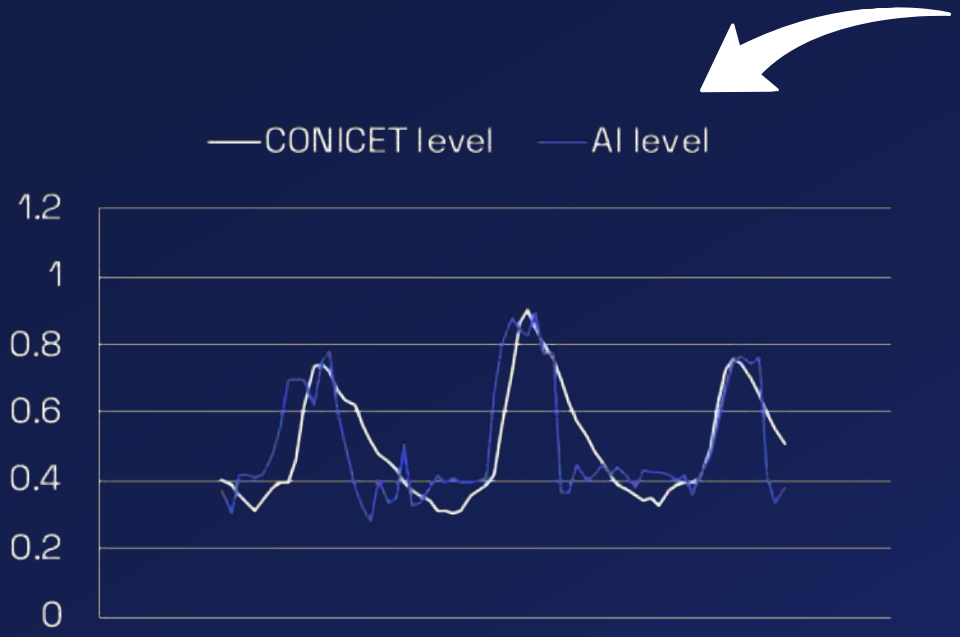
LSPIV stations



Water Level

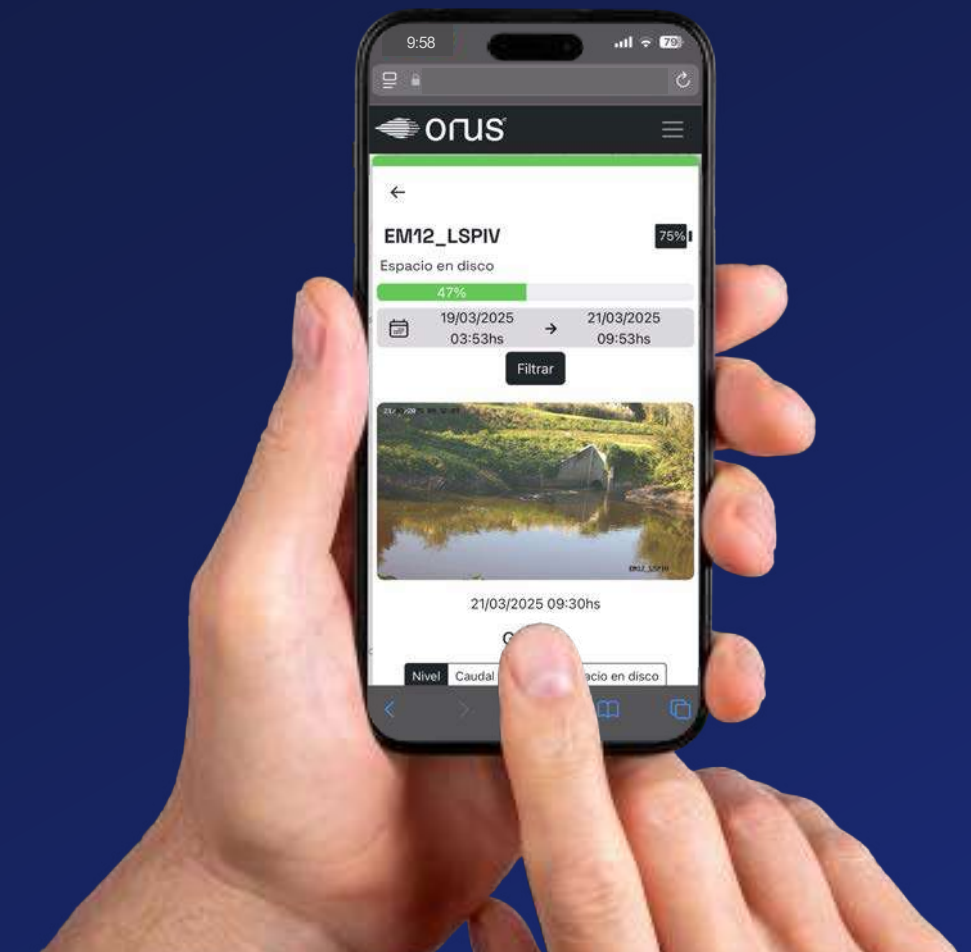
LSPIV stations





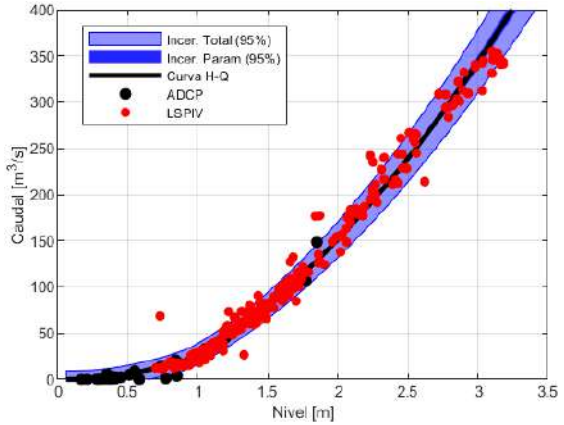
App Web

LSPIV stations

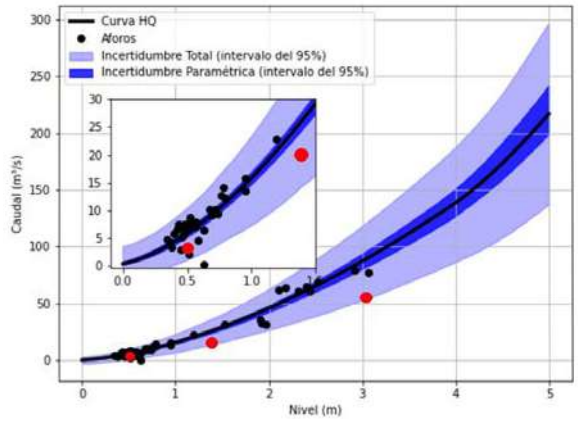


Results

LSPIV stations



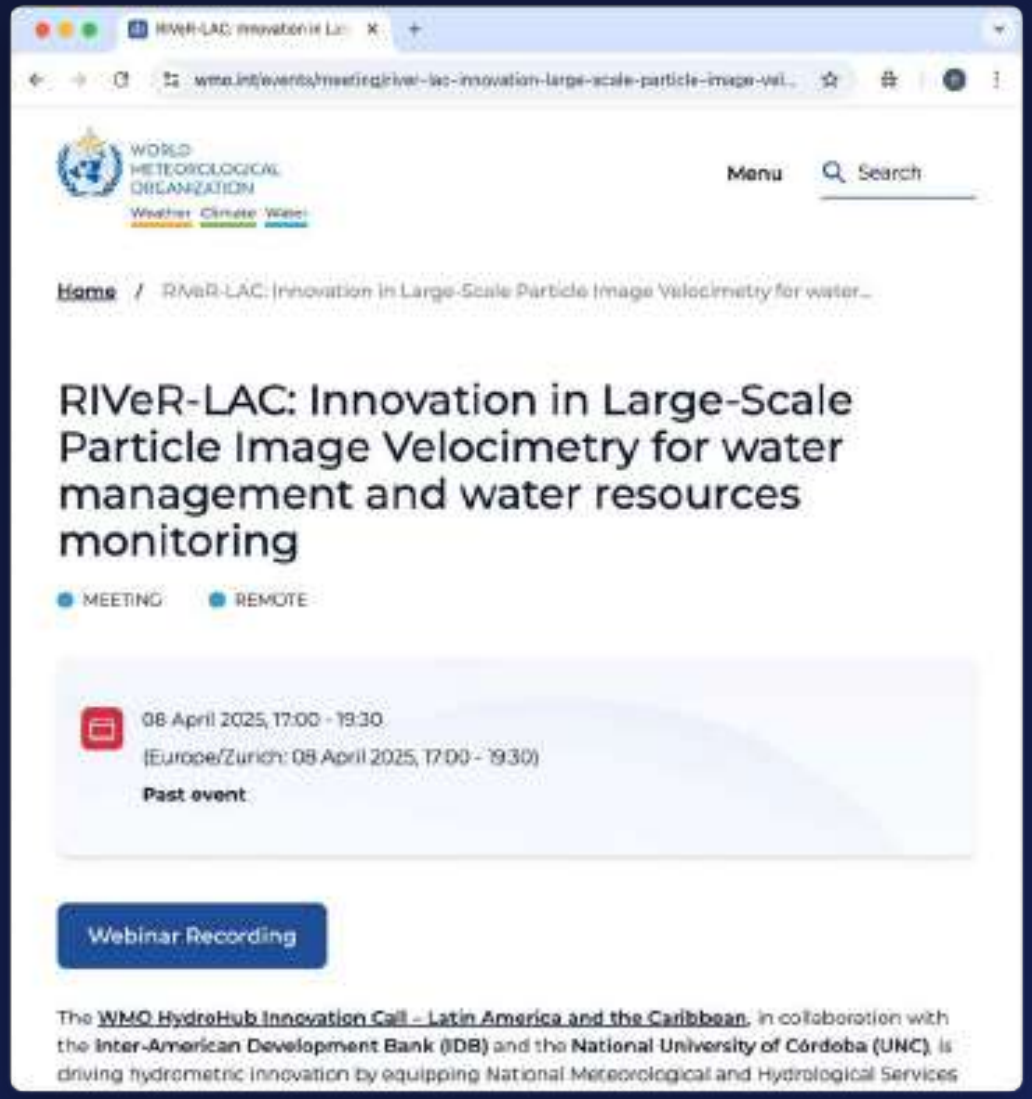
San Antonio
Córdoba



Riachuelo
Buenos Aires

🌧️⬇ 20% (1991-2020)

Workshop



250

Participantes únicos

Unique participants

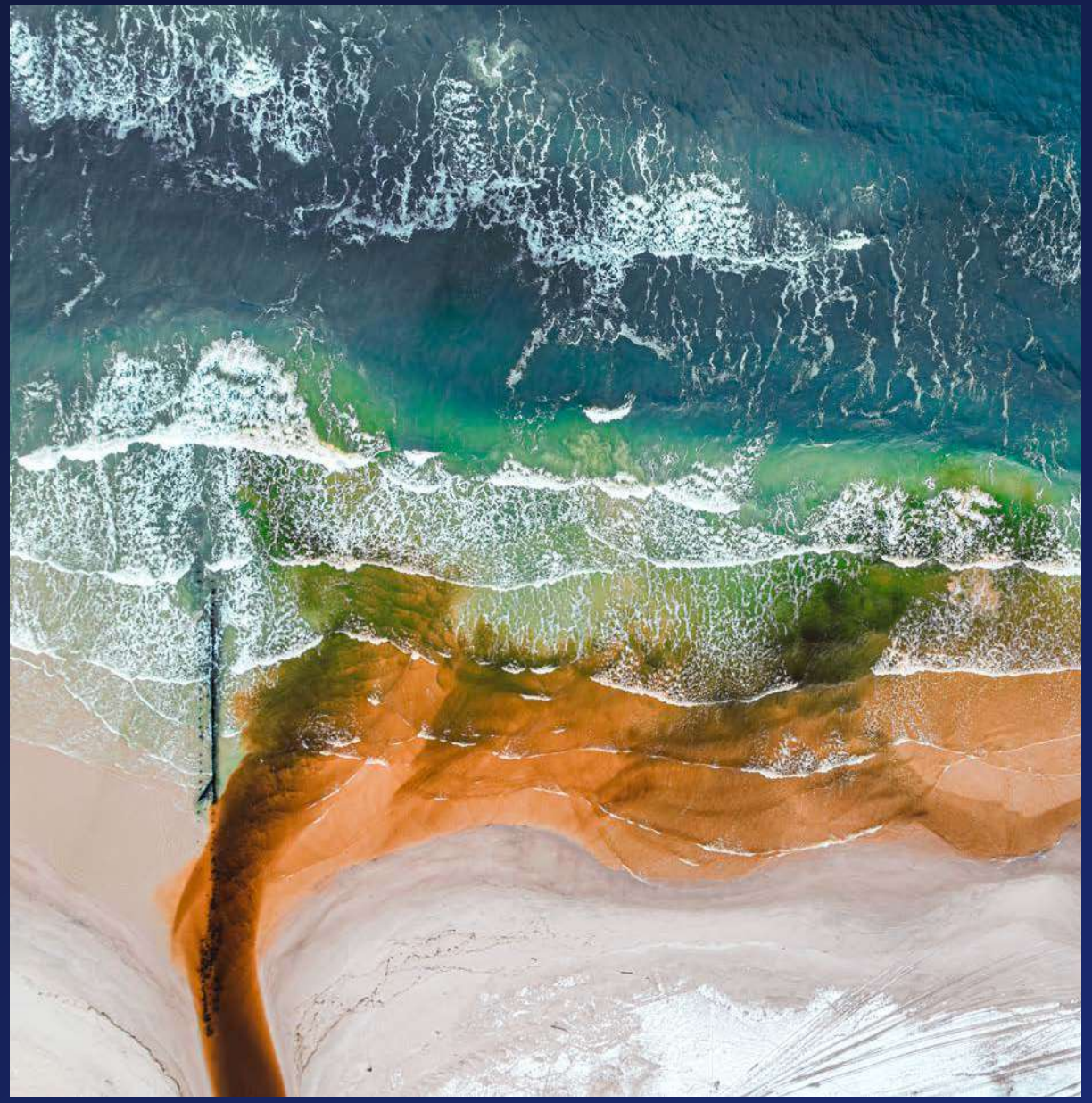
700+

Vistas en Youtube

Views in Youtube

Conclusions

- Open-source LSPIV technology adoption
- The development of guidelines
- The economic advantages of LSPIV implementation
- Strategic institutional partnerships
- Sustainable innovation beyond project timeline



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Thank you.

Antoine Patalano

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