

UNITED NATIONS | COSTA RICA | PSIPW

CONFERENCE ON SPACE TECHNOLOGY FOR WATER MANAGEMENT

HOSTED BY THE INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE

7-10 MAY, SAN JOSÉ, COSTA RICA



MINISTERIO DE RELACIONES EXTERIORES Y CULTO

GOBIERNO DE COSTA RICA



Prince Sultan Bin Abdulaziz International Prize for Water



T1S2 - Informed decision-making for agricultural interventions and irrigation decisions

8 May 2024 - 11:00 -12:30

Conclusions : T1S2

Informed decision-making for agricultural interventions and irrigation decisions

- During this session, experts from international, regional, and national organizations shared their insights and experiences from various perspectives on how satellite data is used to monitor water productivity and leverage remote sensing for efficient irrigation practices. The session aimed to explore how technology and data can help tackle some of the most pressing challenges in agriculture today, such as food security and sustainable water use.
 - The WaPOR Project Jorge Gutierrez (Food and Agriculture Organisation, Colombia)
 - Sustainable Agriculture in the Lower Limpopo Basin: A remote sensing approach to assessing irrigation performance in Mozambique – Karthikeyan MATHESWARAN, Consortium of International Agricultural Research Centers (CGIAR)
 - COALA Space-Based Irrigation Scheduling Francesco VUOLO, University of Natural Resources and Life Sciences, Austria
 - IRRISAT-MAROC : Operational irrigation management based on Remote Sensing data Mohammed Faouzi SMIEJ, Royal Centre for Remote Sensing, Morocco

The goals of the projects

Achieving food security while ensuring sustainable water use is a critical challenge.

□ Effective monitoring of water use in agriculture to increase productivity.

Provide Governmental authorities and local actors with precise, accurate and timely information for policy implementation, decision making and operational monitoring

Services and Benefits offered

- □ WaPOR (FAO)
 - is a publicly accessible, near real-time satellite data-based database.
 - Monitors agricultural water productivity at various scales using satellite data (300, 100 and 20 m)
 - Monitoring crop health in the fields & Precision irrigation monitoring and scheduling.
 - Building resilience in food systems by providing data for informed water management
- □ Mozambique / WaPOR at country level Enables end-users to
 - identify specific irrigation schemes and intra-scheme areas with low land utilization and productivity gaps.
 - Highlight water use hotspots that require targeted intervention.
 - Provide system/subsystem-level insights for stakeholders.

Services and Benefits offered

- COALA API
 - Enhances irrigation efficiency, reducing water usage and improving fertilization practices.
 - Supports sustainable crop management on a global scale.
 - Contributes to water conservation and cost savings for farmers.

IRRISAT Morocco

- improves water use in agriculture at various management scales (Farmers, Irrigation and Water Regional Agencies. Ministerial departments (Agriculture, Water))
- Generates indicators on water consumption, demand, productivity, and provides irrigation recommendations.
- Dissemination Platform

Challenges

- Data Quality and Accuracy, Spatial Resolution
 - Variability in satellite data resolution affecting the detection of small-scale irrigation systems.
 - Cloud cover and atmospheric conditions causing inconsistent data quality.
 - Calibration issues leading to discrepancies between satellite-derived data and ground truth.
 - High-resolution data often being expensive or unavailable.

□ Temporal Resolution:

- Infrequent satellite overpasses resulting in a lack of timely data.
- Limited temporal resolution making it challenging to monitor rapidly changing irrigation practices.
- Ground Truthing and Validation:
 - Difficulties in obtaining accurate ground truth data for validation.
 - Limited accessibility to ground-based measurements in remote areas.

Challenges

- □ Integration with Local Systems:
 - Challenges in integrating satellite data with local irrigation management practices.
 - Differences in regional irrigation infrastructure requiring tailored approaches.
- **Capacity Building and Training:**
 - Limited expertise in using satellite remote sensing data among local stakeholders.
 - Need for continuous capacity building and training to interpret and utilize the data effectively.
- Data Accessibility and Sharing:
 - Restrictions on data access due to licensing or proprietary concerns.
 - Inconsistent data sharing policies among organizations.
- □ Infrastructure and Technological Limitations:
 - Insufficient computational infrastructure for processing large satellite datasets.

Key Takeaways

Platform WaPOR

- WaPOR is a significant tool that provides accurate and real-time data for better agricultural water management.
- Collaborative efforts with partner countries help tailor data applications to specific regional needs and enhances the assessment of irrigation schemes.
- Comprehensive data analysis at scheme and intra-scheme levels informs effective decision-making for sustainable irrigation management.

Key Takeaways

COALA platform

- □ COALA API is a powerful tool for precise, data-driven irrigation scheduling.
- The integration of satellite data and advanced modeling helps optimize water use and reduce production costs.
- The innovation can be applied globally, benefiting farmers, policymakers, and environmental sustainability efforts.

IRRISAT Maroc

- Operational irrigation management requires high-resolution and accurate remote sensing data.
- Combining IRRISAT and SAT'IRR platforms enhances irrigation efficiency and water resource management in Morocco.
- The project contributes to implementing Government policy: support achieving the goals of the Green Morocco Plan for sustainable agriculture



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Thank you