



الجمهورية الجزائرية الديمقراطية الشعبية
Democratic And Popular Republic Of Algeria
وزارة التعليم العالي والبحث العلمي
Ministry of Higher Education and Scientific Research
جامعة عباس لغرور - خنشلة
University Khenchela - Abbés Laghrour



SDG14 Life Below Water

14-03 Supporting Aquatic Ecosystems through Action

14-03-02

- Does your university as an institution support and/or organize events aimed at promoting the conservation and sustainable use of oceans, seas, lakes, rivers and marine resources?
- Yes, the University of Khenchela supports and organizes advanced research events and activities aimed at promoting the conservation and sustainable use of water resources, through its specialized research teams and strong institutional partnerships with irrigation and water sectors.

Exceptional Research Achievements:

Research Team 4: Applied Geomatics for Integrated Management of Natural and Agricultural Hydrological Resources

Responsible:

- Dr. Aouidane Laiche, Lecturer "A"
- Specialization: Agricultural Sciences
- Email: aouidane.laiche@univ-khenchela.dz

Team Members:

1. Dr. Aouidane Laiche (Habilitation)
2. Dr. Ben Heziya Taoufik (Habilitation)
3. Goubi Mustapha (Master's - Forests and Soil Protection)

Strategic Research Axes:

a. Integrated Water Resources Management:

- Spatial geographic modeling of drainage basins
- Analysis and mapping of soil and groundwater salinization

- Development of GIS-based Decision Support Systems (DSS) for water resource allocation

b. Agricultural-Hydrological Planning:

- Application of Geostatistics techniques to estimate irrigation needs
- Simulation of climate change impacts on water resources and crops
- Study of soil management impact on water resource availability

c. Artificial Intelligence and GIS:

- Design of predictive models using neural networks to assess groundwater quality
- Automation of agricultural crop classification using Machine Learning
- Development of geographic web platforms for collaborative management of natural resources

d. Protection of Sensitive Areas:

- Identification and protection of Wetlands using geospatial data
- Study of land use conflicts related to urban and agricultural growth
- Preparation of scenarios for sustainable management

e. Remote Sensing:

- Monitoring drought and flood evolution using satellite data
- Detection of changes in land use
- Temporal and spatial analysis of water cycles

f. Environmental Treatment:

- Development of Phytoremediation techniques
- Treatment of polluted water and soil
- Reuse of non-conventional water in irrigation with environmental risk assessment

Strategic Partnerships:

1. Agreement with the Ministry of Public Works and Irrigation

- Partner: Algérienne Des Eaux - Batna
- Fields:
 - Development of DSS systems for water resources
 - Joint applied research
 - Exchange of data and expertise

2. Agreement with the Irrigation Directorate of Khenchela Province

- Field application of research
- Solving local water problems

Integrated Disciplines:



- Civil Engineering Department: Environmental engineering, water treatment, waste management
- Agricultural Sciences Department: Irrigation, soil management, crops
- Environment and Surroundings Department: Ecosystems, pollution, biodiversity

Evaluation:

- Advanced research using artificial intelligence and GIS
- Strong institutional partnerships
- Direct practical applications
- Knowledge dissemination through conferences

