



Desert Architecture & Urban Planning, Department of Man in the Desert
Swiss Institute for Dryland Environmental and Energy Research
Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev

A laboratory for Geospatial and Architectural Imaging and Analysis (GAIA) in desert environments

The Desert Architecture research group has attracted talented young researchers who are carrying on work in new and vital directions. Based on newfound expertise in cutting-edge technologies, a vision for a laboratory has coalesced around the advanced spatial analysis of desert environments for use in architectural design, building construction and urban planning – as well as allied fields of research in other departments of the Blaustein Institutes for Desert Research (BIDR).

This modern incarnation of the Desert Architecture laboratory will provide an unparalleled work environment for graduate students and researchers who are trained in advanced Geographical Information Systems (GIS) and image processing techniques, and are applying these tools toward the solution of environmental problems in arid regions.

As envisioned, the lab will provide an engine for the collection and sharing of global data on drylands and will offer the technology and expert knowledge to conduct sophisticated spatial analysis and imaging of arid environments by combining virtual and in-situ tools in a number of areas:

- 3D urban modeling
- Landscape modeling and visualization
- Modeling of urban dynamics
- Thermal imaging
- Object recognition
- Image and video processing
- Interactive data mining & visualization

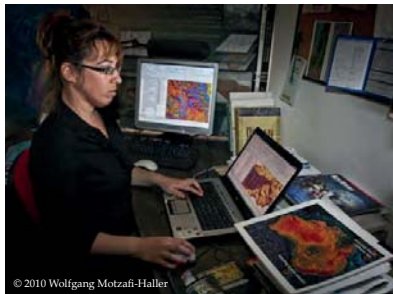
In addition, the proposed lab will serve a wide range of other research groups in the BIDR by providing an interdisciplinary environment for conducting spatial analysis and imaging in areas such as:

- Drought risk analysis

- Species distribution and conservation
- Water and land-use management
- Groundwater pollution assessment
- Disaster assessment and management
- High-precision scientific imaging

It is proposed that the new lab will initially be staffed by one permanent scientific researcher with expertise in advanced GIS theory and techniques, and one technician with professional expertise in advanced imaging methods and systems integration.

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