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ERIC RESOURCE APPLICATIONS

SelectWater

Water

Application

ERIC develops information on the nature and condition of water resources from remotely sensed images to address land development and management. The images include optical and radar satellite imagery and airborne optical and geophysical data.

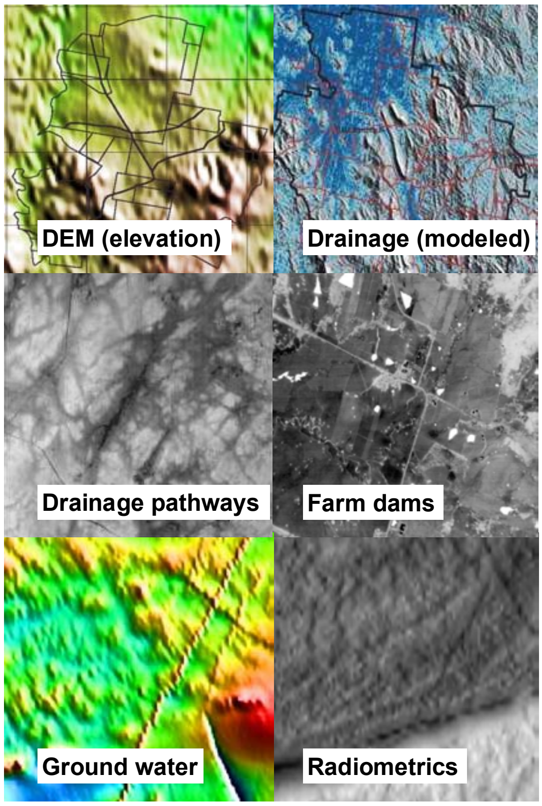
Mapped information on climate, as with rainfall and temperature, is derived by applying surface fitting models to ground meteorological records. Together with terrain, this information is analysed to derive information and intelligence to address client needs.

The information addresses constraints to development, such as water supply and waste water disposal, and risks associated with factors such as floods, waterlogging and seepage from irrigation channels. A service is provided for groundwater bore location. Analysis of measured data improves knowledge of the factors that constrain development and affect business and environmental performance.

The information is also used to monitor the extent and condition of natural water bodies such as lakes and wetlands and to monitor the development of water infrastructure such as farm dams.

Approach

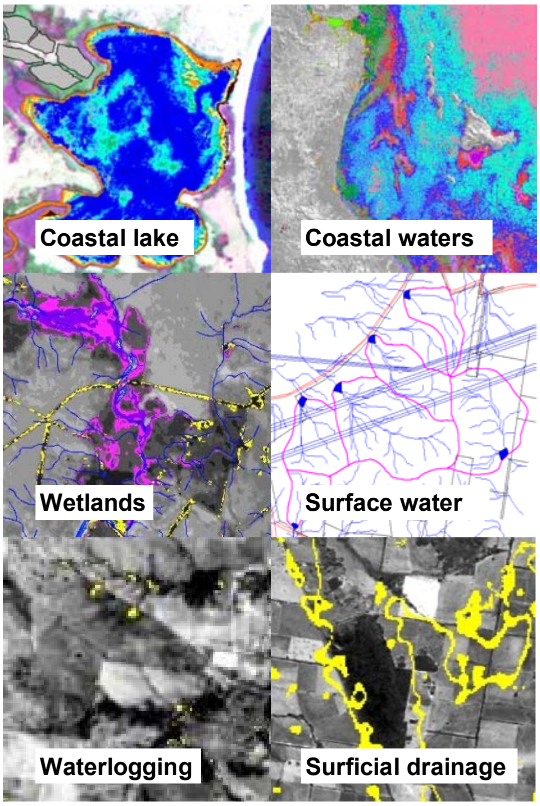
Broad constraints on water availability and disposal are evaluated by way of climate, terrain and soils. Groundwater potential is addressed by way of subsoil constraints to identify prospective locations for bores.



Waste water disposal is addressed by way of climatic, soil and vegetation.

Patterns of flooding are mapped using satellite radar and areas of waterlogging using optical satellite imagery. Potential accession areas at risk of waterlogging are mapped using terrain analysis.

Where possible realised outcomes are mapped using measured data, as in flood mapping. The potential outcomes for waste water disposal and potential surface water yields are modelled from the information on climate, soils, terrain and vegetation.



Groundwater Potential

Geophysical and satellite images are analysed to identify potential aquifers and prospective bore locations. Ground inspection is used to confirm locations. The information targets fractured aquifers rather than basins to focus on water quality. The patterns of potability of existing bores can be mapped from archival records.

Realised Patterns of Soil Moisture

Patterns of surface soil moisture are mapped using optical and satellite radar. The example with optical satellite imagery identifies surficial wetness associated with drainage lines and irrigation channels. Satellite radar examples identify leakage from irrigation channels, irrigation application and flood mapping.

Information on the location and extent of water storages and surficial patterns of drainage can be obtained using satellite imagery. Higher spatial detail, particularly for small surface water bodies and surficial drainage pathways, can be obtained using night time thermal imagery. In areas with salinity, airborne radiometrics can also identify surficial drainage pathways.

Potential Wetness Patterns

Where measured data are unavailable areas potentially subject to waterlogging are modelled from terrain. Modelling is also used to determine the requirements for water storages and for waste water disposal.

The development of climate surfaces improves the prediction of likely outcomes in locations remote from meteorological stations. It is essential for regional projects.

Terrain analysis of catchments allows identification of areas naturally prone to waterlogging. It can also be used to provide estimates of potential surface water yields.

Soil mapping identifies the permeability of areas for drainage and the potential for plant growth. The associated analysis of the geophysical data additionally identifies preferred pathways for surficial subsurface water flow. As the soil mapping provides salinity information, the soil property maps provide the information needed to evaluate the potential and risks for on site disposal of waste water.