Satellite data record

A total of 261 Landsat and ASTER images have been taken of Qom Playa since 1972; 219 were cloud-free over the playa (above, left). The wettest years preceded 1980, as shown above but especially by the number of times the playa filling overlaid the northern basin. This does not represent an actual increase in drought; Gaps in the record make that interpretation difficult. The detailed record since 1997 (above, right) shows periodic cycle of wet and dry years and correspond to the period 1994-present (wet period) for which monthly precipitation for Tehran is available.

Quantitative information from images

Photointerpretation yields information on the extent and scale of wet areas, but images may be relied photointerpretation for relative information as well. Examples (and key properties) pertinent to Qom Playa include:

- moisture (absorption, transmission, thermal inertia)
- margins (fluviomarine, dune)
- radiometric properties
- reflectance at shorter wavelengths

Calculating wetness

NDVI (normalized difference vegetation index) is a simple but effective measure of vegetation cover.

\[ NDVI = \frac{R_N - R_S}{R_N + R_S} \]

where \( R_N \) and \( R_S \) are the reflectance of the near-infrared and shortwave infrared bands, respectively.

Example: Vegetation coverage

The vegetation index NDVI. The graph at right shows NDVI for unirrigated vegetation from 1984 through 1998. In Iran, vegetation is variable from year to year but flourishes after rainy spells.

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