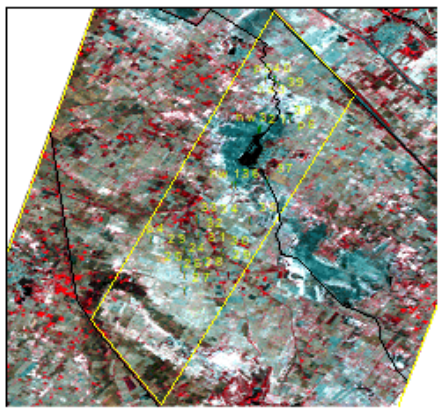
Hyperspectral RS data in Quantifying Severity of Salt-affected Soils

Land Degradation
Indo-Gangetic Plains
Mathura (UP)

Six spectral bands (Band 9, 20,22,28,29 and 46) of Hyperion -1 satellite data were identified as most sensitive bands to the salinity

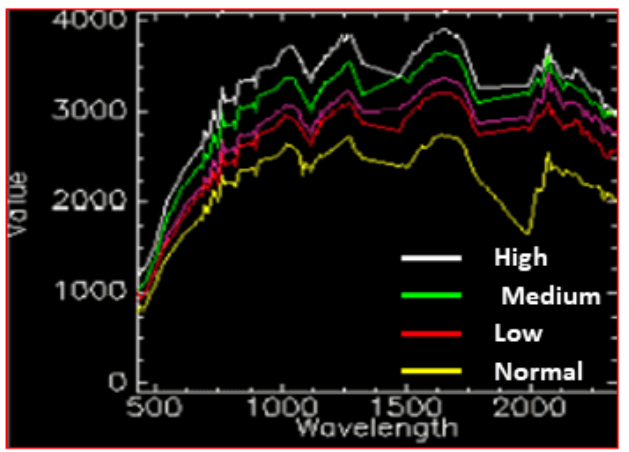


- **SALINITY INDEX**

√ Band 9 (436.99 nm) * Band 28 (630.32 nm)

- **BRIGHTNESS INDEX**

√ ((Band 9 ^{2} (436.99 nm) + Band 20 ^{2} (548.93nm) + Band 28 ^{2} (630.32 nm))/3)



EC distribution

Legend
- Normal Soil (0.16 - 3.07)
- Slightly Salt-Affected Soil (4.28 - 7.70)
- Moderately Salt-Affected Soil (8.10 - 10)
- Highly Salt-Affected Soil (10.21 - 30.41)

Correlation Coeff.

Spectral Indices	EC	pH	ECe	ESP	SAR
Salinity index	**0.81**	**0.52**	**0.78**	**0.80**	**0.80**
Brightness index	0.77	0.52	0.73	0.79	0.77

The **RMSE between observed and predicted** EC, SAR, ESP maps for Salinity index was the least i.e. 7.48%, 18.14% and 7.85% followed by Brightness index i.e. 7.7%, 33.36% and 9.60% respectively.