**Table 1.** RS features extracted from GEE.

|  |  |  |
| --- | --- | --- |
| Categories | Acronym | Formula |
| SAR features | VV | VV |
| VH | VH |
| P1 | VV + VH |
| P2 | VV2 + VH |
| P3 | VV2 + VH2 |
| P4 | VH2 – VV |
| P5 | (VH2 + VV2) / VH |
| P6 | 10 log(VV) |
| P7 | 10 log(VH) |
| P8 | 10 log(VV) + 10 log(VH) |
| Multispectral features | NDVI | B8 – B4 / B8 + B4 |
| GNDVI | B7 – B3/B7 + B3 |
| WDVI | B8 – 0.5 \* B4 |
| TNDVI | (0.5 + (B8 – B4 / B8 + B4))0.5 |
| SAVI | ((B8 – B4) / (B8 + B4 + 0.5)) \* 1.5 |
| IPVI | B8 / B8 + B4 |
| MCARI | B5 – B4 – 0.2 \* (B5 – B3) \* B5 / B4 |
| REIP | (700 + 40((B4 + B7) \* 0.5 – B5)) / (B6 – B5) |
| MSAVI2 | 0.5 \* (2 \* B8 – 1 – ((2 \* B8 + 1)2 – 8)0.5) |
| DVI | B8 – B4 |
| NSI | (B11 – B12) / (B11 – B8) |
| VSSI | 2 \* B3 – 5 \* (B4 + B8) |
| NDSI | (B4 – B8) / (B4 + B8) |
| SR | (B3 – B4) / (B2 + B4) |
| CRSI | (B8 ∗ B4 – B3 ∗ B2) /  (B8 ∗ B4 + B3 ∗ B2) |
| BI | (B42 + B82)0.5 |
| SI1 | (B3 \* B4)0.5 |
| SI2 | (B4 \* B2)0.5 |
| SI3 | (B32 + B42)0.5 |
| SI4 | (B8 \* B11 – B112) / B8 |
| SI5 | B2 / B4 |
| SI6 | B4 \* B8 / B3 |
| Topographic features | DEM | SRTM DEM |

Table 2. Grading of soil salinity levels.

|  |  |
| --- | --- |
| Intensity | Levels |
| None | <0.75 |
| Slight | 0.75–2 |
| Moderate | 2–4 |
| Strong | 4–8 |
| Very Strong | 8–15 |
| Extreme | >15 |

Table 3. Model performance of different modeling approaches across the two transfer sites.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Regions | Methods | Calibration | | | Validation | | |
| R2 | RMSE | LCCC | R2 | RMSE | LCCC |
| Site 2 | Full data | 0.414 | 1.303 dS m−1 | 0.309 | 0.237 | 0.8 dS m−1 | 0.295 |
| RFE | 0.461 | 1.25 dS m−1 | 0.327 | 0.328 | 0.751 dS m−1 | 0.328 |
| VIF | 0.388 | 1.331 dS m−1 | 0.244 | 0.148 | 0.846 dS m−1 | 0.273 |
| Site 3 | Full data | 0.742 | 1.24 g kg−1 | 0.671 | 0.65 | 1.093 g kg−1 | 0.563 |
| RFE | 0.753 | 1.212 g kg−1 | 0.693 | 0.704 | 1.005 g kg−1 | 0.601 |
| VIF | 0.654 | 1.436 g kg−1 | 0.526 | 0.507 | 1.297 g kg−1 | 0.407 |