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Predicting long term regional drought pattern in Northeast India using advanced statistical technique and wavelet-machine learning approach

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Figure 1 Locational aspect of the Nagaland-Manipur-Mizoram- Tripura (NMMT) meteorological division



Figure 2 Time series of SPI-6 and SPI-12 over northeast India



Figure 3 Results of the ITA (a), sequential version of the MK test (b), and wavelet power spectrum (c) of SPI-6 and SPI-12 in northeast India



Figure 4 Original SPI-6 series, its approximation (a1-a4) and detailed components (d1-d4) using DWT



Figure 5 Original SPI-12 series, its approximation (a1-a4) and detailed components (d1-d4) decomposed using DWT



Figure 6 ITA of all the decomposed layers (a1-d4) of SPI-6



Figure 7 ITA of all the decomposed layers (a1-d4) of SPI-12



Figure 8 Sequential MK test of all the decomposed layers (a1-d4) of SPI-6



Figure 9 Sequential Mann-Kendall test of all the decomposed layers (a1-d4) of SPI-12



Figure 10 Correlation between actual SPI-6 and predicted SPI-6 using PSO-REPTree algorithms in training stage



Figure 11 Correlation between actual SPI-12 and predicted SPI-12 using PSO-REPTree algorithms in training stage



Figure 12 Correlation between actual SPI-6 and predicted SPI-6 using PSO-REPTree algorithms in testing stage



Figure 13 Correlation between actual SPI-12 and predicted SPI-12 using PSO-REPTree algorithms in testing stage