ABSTRACT

Flooding is one of the most destructive natural events. Identifying the flood-affected area as soon as possible is essential. In March of 2023, a major flood destroyed the Lakhimpur area in Assam. Sentinel-1 pictures have been used to track this flood event in the current paper. The Otsu thresholding technique has been applied to the vertically transmitted vertically received (VV) polarization band SAR data to distinguish between flooded areas and the remaining land covers. A threshold value of -14.89 dB was determined and implemented to detect flooded areas. The inundated area indicated a considerable degree of variable; yet, the threshold presented accurately depicted the variations in the flood.

Moreover, flooded areas are overlaid on the slope, elevation, LULC, and river distance to show how flooding significantly impacts each class of these parameters. Sentinel-2 optical images were used to validate Otsu automatic thresholding approach for flood mapping. The automatic method works well for quickly mapping floods over complicated terrain.