Fully Convolutional Neural Network for Rapid Flood Segmentation in Synthetic Aperture Radar Imagery

Floods are most frequent natural disaster & can cause major societal & economics disruption alongside significant loss of human life. much remote sensing flood analysis is semi-automated, with time consuming manual components. requiring hours to complete. Here fully automated approach to rapid flood mapping currently carried out by many non-gov national & international organization. CNN based method which isolated flooded pixels in freely available Sentinel-1 SAR imagery requiring no optical image & minimal pre-processing. This reduces time required to develop flood map by 80% while achieving strong performance over wide range. Raw satellite image is imported, pre-processed & calliberated through radiometric correction. After that it undergo. Speckle filtering by Lee. then threshold values are determined to seperate water & land. extraction may either underestimate or overestimate flood & therefore expert knowledge provided by an analyst. new raster image will have two values '1' values representing threshold & '0' corresponding pixel above threshold. Focal statistics method is then applied to help further smooth & remove additional noise. river & other water resources that were present in pre-flood analysis are then filtered & excluded from flooded area.