Variety of multisensor, multispectral and multitemporal images currently available. The information content in each image dataset is limited by the properties of the sensor source. When such multisensor images are fused, we can extract more information and use them for various applications. Fusion of images from Passive and active sensor sources viz., LISS III with SAR was tested for inundation mapping. The multispectral image provide necessary information for landcover interpretation and the SAR images provide object absorption property due to the presence of moisture. The fusion of these multi sensor images exploits the complementary nature of these different data types. The fused SAR images have been used efficiently for inundation mapping in part of chennai city, India. The difficulties in the direct fusion of SAR data with multispectral data were also analysed to minimize the problems during image fusion.