

Cover

Fraction images derived from NOAA AVHRR data for studying the deforestation in the Brazilian Amazon

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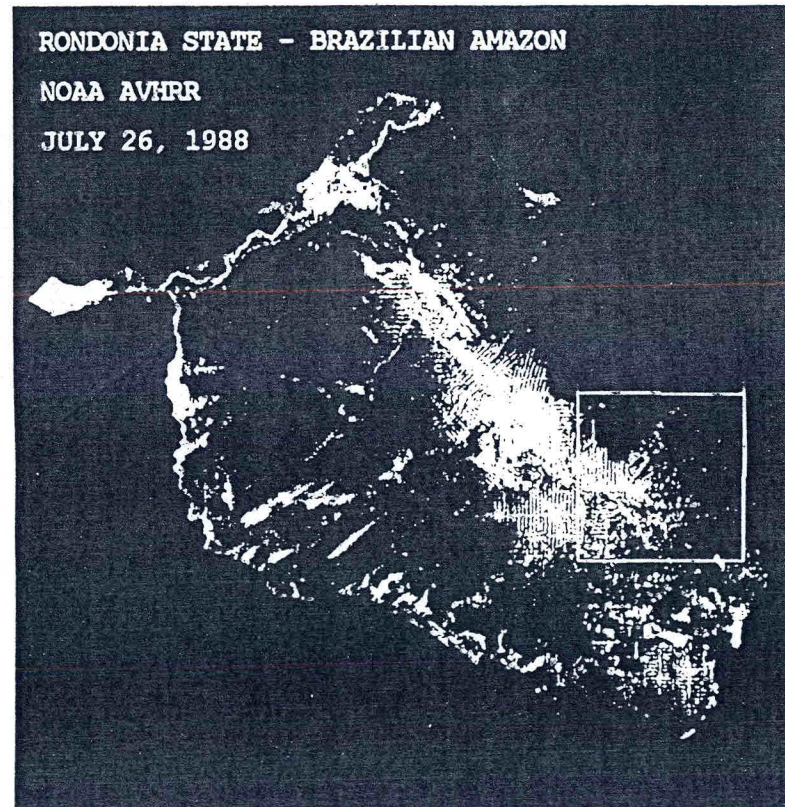


Figure 1. Colour composite of fraction images (Vegetation = Red, Soil = Green, and Shade = Blue) for NOAA AVHRR data acquired on 26 July 1988 over Rondonia State located in the Brazilian Amazon.

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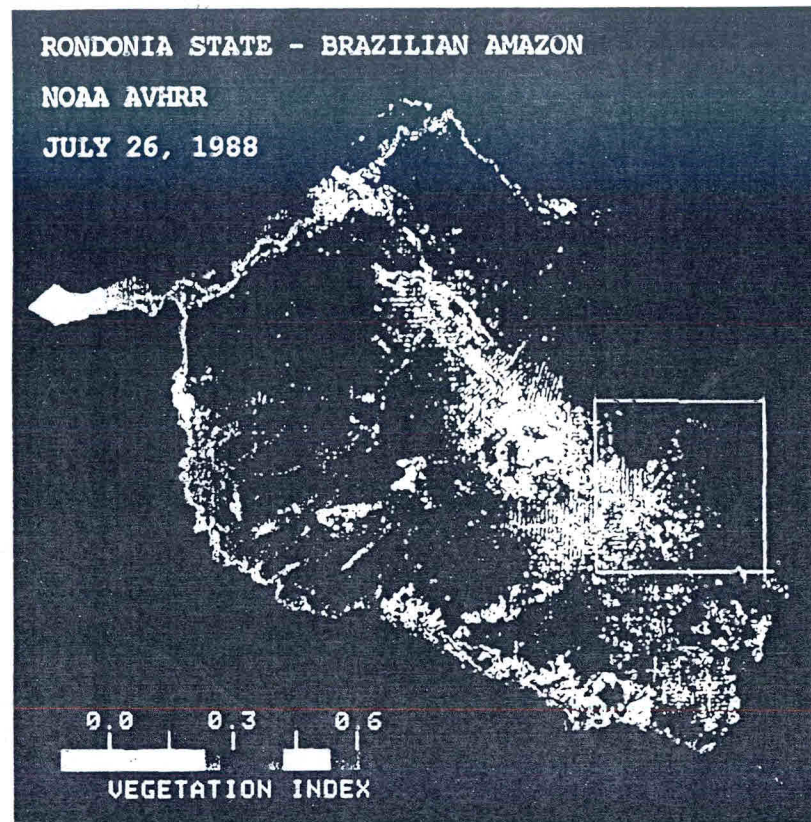


Figure 2. The NDVI image derived from NOAA AVHRR data acquired on 26 July 1988 over Rondonia State.

Fraction images derived from National Oceanic and Atmospheric Administration's (NOAA) Advanced Very High Resolution Radiometer (AVHRR) images contain useful information for studying tropical deforestation. Vegetation, soil and shade fraction images are formed by the proportion amount of each component within the pixel. These values are estimated using the two reflective channels (0.58-0.68  $\mu\text{m}$  and 0.725-1.1  $\mu\text{m}$ ) and the reflective component of the 3.55-3.95  $\mu\text{m}$  channel (Kaufman and Nakajima 1993, Kaufman and Remer 1993). The end-members for AVHRR images to run the Constrained Least Squares (CLS) Method



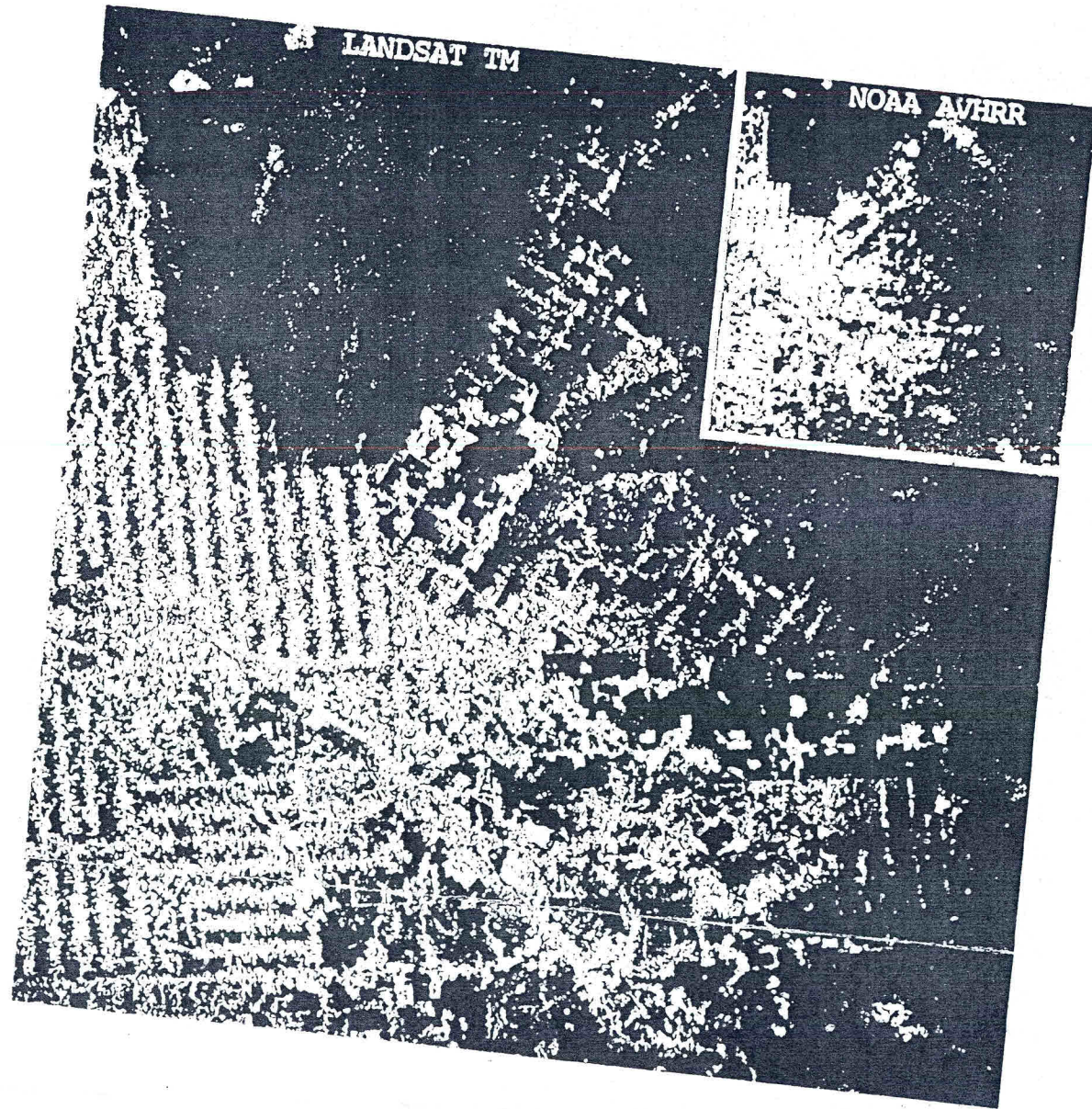


Figure 3. Colour composite of fraction images (Vegetation=Red, Soil=Green, and Shade=Blue) for Landsat TM and NOAA AVHRR data over the same region.

(Shimabukuro and Smith 1991) were estimated using the fraction images derived from Landsat Thematic Mapper (TM) as a 'ground truth', as presented by Holben and Shimabukuro (1993). Figures 1 and 2 show the colour composite (Vegetation=Red, Soil=Green and Shade=Blue) of the fraction images and NDVI image, respectively for AVHRR data acquired on 26 July 1988 over the Rondonia State in the Brazilian Amazon. Figures 3 and 4 show the composite fraction and NDVI images, respectively obtained from AVHRR (26 July 1988) and TM (8 August 1988) for the same region. The NDVI images are very similar to vegetation fraction images and are highly correlated with the fraction images for both remote sensors.