**NASA DEVELOP National Program**

**** NASA Goddard Space Flight Center/NASA Marshall Space Flight Center/

Wise County Clerk of Court’s Office

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**Short Title:** **Alto Orinoco Health & Air Quality**

**Updated Abstract**

Onchocerciasis, or River Blindness, is a treatable disease caused by the vector-borne parasite *Onchocerca volvulus*. The parasite is transmitted through bites of infected black flies from the genus *Simulium*. Once inside the human host, *O. volvulus* migrate to the skin, various organs, and eyes, causing debilitating itching and rashes, disfigurement, visual impairment, and complete blindness. The Alto Orinoco municipality of Venezuela is the last remaining area for active transmission of onchocerciasis in the Americas. The Yanomami tribes occupy this area in secluded rainforest villages and migrate frequently due to shifting cultivation, flooding, and food shortages. This presented a unique set of challenges to health workers in distributing regular treatments, collecting data, and locating groups of nomadic people whose survival depends on relocating regularly and living in isolation. The NASA DEVELOP team analyzed data from NASA’s Landsat 8 Operational Land Imager (OLI) and Thermal Infrared Sensor (TIRS) and Terra Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) to map suspected locations of the Yanomami villages from 2011 to 2015. Spectral analysis, cloud masking, soil properties, and WorldView-3 high-resolution comparisons were also utilized to locate villages. Ultimately, this project assisted The Carter Center River Blindness Elimination Program in targeting its efforts to eliminate Onchocerciasis in the Americas by the end of 2015.