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Using satellite-based dry conditions monitoring to estimate fire risk in Brazil

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Fire is a major disturb in ecosystems in Brazil. Fires are strongly linked to carbon and nutrient cycling and may be responsible for most of the carbon emissions in the region. In addition, accidental fires represent a significant threat to forests and protected areas. Fire-risk monitoring systems are thus essential to prevent substantial environmental damage from fires, by allowing deciding on resources allocation for preparedness and mitigation in case of large fire events. In all fire-risk monitoring systems, precipitation data play a prominent role as most fires occur during dry periods. Because it is difficult to provide rainfall data for large regions based on ground measurements, satellite-based rainfall estimates offer an additional frequent source of precipitation data for the entire country. Preliminary large-scale analyses show a significant correlation between fire occurrence and dry conditions estimated from geostationary remote sensing. This good agreement indicates that satellite-based precipitation data are useful to evaluate fire risk for environmental monitoring, and may be included as an important tool in future risk assessments.