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Optical and geometrical properties of a biomass burning smoke plume over Minos Gerais, Brazil, observed from the space shuttle Columbia during the MEIDEX mission.

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High resolution spectral images of a heavy smoke plume over Brazil in January 2003 were obtained by the MEIDEX instrumentation on the space shuttle Columbia. The plume changed direction while in the field of view. The instrument included a XY-BION camera, which is part of an absolutely calibrated, image- intensified radiometer measuring in six narrow bands from 340 to 860 nm

These spectral bands cover for the first time both TOMS and Aqua/MODIS data simultaneously.

Plume planar shape, width and height, direction, change of direction while in Field Of View (FOV)and influence on adjacent clouds were studied as well as the optical properties of the biomass- burning smoke aerosol. A clear difference between the smoke and its behaviour before and after the direction change can be seen.

Clouds were completely suppressed in the area of the smoke plume, Moreover, a cloud- free corridor was observed along the plume edges as well as along a nearby river.

Cloud and smoke plume height was estimated from their shadows and its variation will be shown along the plume and with respect to the distance from the plume core.

The spectral optical depths of the smoke plume were determined by use of the Top Of Atmosphere (TOA) radiance from plume center and edges as well as by comparing the reflected radiance from ground surfaces shadowed by the smoke plume to that from

Sun-lit adjacent jungle surface.