

## IGARSS 2000 ABSTRACT SUBMISSION TEMPLATE

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### ABSTRACT TITLE:

The Second-Generation Spaceborne Precipitation Radar

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### ABSTRACT TEXT:

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A TRMM follow-on mission series - Global Precipitation Mission (GPM), is currently being planned to extend and to improve the TRMM acquired rainfall data. The GPM mission set is envisioned to have multiple launches over a long time span. The first launch is planned to take place in 2006 and will use mostly the inherited TRMM instrumentations on the core satellite, and a set of small drone radiometers flying in formation to provide a 3-hourly revisit time. At the same time, advanced instrument technologies and new remote sensing techniques will be developed for subsequent launches. One of the GPM technologies being developed is a dual-frequency radar. In this paper, we present a system concept for this second-generation precipitation radar (PR-2). The key PR-2 system consists of: (1) a 13.6/35 GHz radar electronics that has Doppler and dual-polarization capabilities; (2) a large but light weight, dual-frequency, wide-swath scanning, deployable antenna; (3) digital chirp generation and the corresponding on-board pulse compression scheme to allow a significant improvement on rain signal detection without using the traditional, high-peak-power transmitters and without sacrificing the range resolution; (4) an approach to adaptively scan the antenna so that more time can be spent to observe rain rather than clear air; and (5) the built-in flexibility on the radar parameters and timing control such that the same radar can be used by different future rain missions.\_\_\_\_\_

TOPIC PREFERENCE: TRMM and GPM