Rev. Mexicana Astron. Astrof. **12**, 370 (1986)

SOLAR BURST WITH MILLIMETRE-WAVE EMISSION AT HIGH FREQUENCY

P.Kaufmann, E. Correia, J.E.R. Costa, A.M. Zodi Vaz

Instituto de Pesquisas Espaciais, CNPq
Brasil

and

B. R. Dennis

NASA, Goddard Space Flight Center, USA

ABSTRACT. Solar burst emission data at shorter millimetre wavelengths have been based on a few events measured with low sensitivity and relatively poor time resolution. We present here the first high sensitivity and high time-resolution observations taken simultaneously at 90 GHz (λ = 3.3 mm) and at 30 GHz (λ = 10 mm). These have identified a unique impulse burst on 21 May 1984 with fast pulsed emission that was considerably more intense at 90 GHz than at lower frequencies. Hard X-ray time structures at energies above 25 keV were almost identical to the 90 GHz structure to better than 1s. The structure of the onset of the major 90-GHz burst coincided with the hard X-ray structure to within 128 ms. All 90-GHz major time structures consisted of trains of multiple sub-second pulses with rise times as short as 0.03s and amplitudes that were large compared with the mean flux. When detectable, the 30-GHz sub-second pulses had smaller relative amplitude and were in phase with the corresponding 90-GHz pulses.

(Published in *Nature*, 31 January, 1985).

E. Correia, J.E.R. Costa, P. Kaufmann, and A.M. Zodi Vaz: INPE, Instituto de Pesquisas Espacia: CNPq, Caixa Postal 515, 12.200 São José dos Campos, SP Brasil.
B.R. Dennis: NASA, Goddard Space Flight Center, Laboratory for Astronomy and Solar Physics, Greenbelt, Maryland 20771, USA.