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SUPERNOVA 1993J IN NGC 3031

S. D. Van Dyk and K. W. Weiler, Naval Research Laboratory; M. P. Rupen and R. A. Sramek, National Radio Astronomy Observatory; and N. Panagia, Space Telescope Science Institute, report: "New observations of SN 1993J made on Apr. 8.33 UT with the Very Large Array in 'B' configuration show that the source is now detectable in at least three frequency bands. This confirms the first weak detection ([IAUC 5752](#)) of the supernova at 1.3 cm (22.5 GHz) on Apr. 2.30. The source has now risen dramatically in flux density at 1.3 cm to 18.94 +/- 0.20 mJy at R.A. = 9h51m19s.042, Decl. = +69 15'26".45 (equinox 1950.0; +/- 0".2 in each coordinate), in excellent agreement with the previously reported position. The radio position for SN 1993J, compared with the radio position for the nucleus of NGC 3031 given on [IAUC 5752](#), yields an offset for the supernova of 44".0 west, 161".8 south. The supernova is also detected at 2.0 cm (14.9 GHz) with flux density 8.04 +/- 0.18 mJy, confirming the previous detection made at this wavelength by Pooley and Green ([IAUC 5751](#)), and at 3.6 cm (8.4 GHz) with flux density 0.74 +/- 0.05 mJy. The radio spectrum of the supernova is optically thick, as is expected at this time. Comparison with the type-II linear radio supernovae 1979C and 1980K shows that SN 1993J has turned on in the radio significantly earlier than the two previous supernovae. This implies that there is less absorption external to the radio emitting source for SN 1993J and therefore, from modelling, that the progenitor of SN 1993J was probably less massive than the progenitors of the other two radio supernovae, assuming that SN 1993J is type-II/linear as were SNe 1979C and 1980K; if the supernova is type-II/plateau, then its behavior in the radio is unpredictable, since a supernova with this subtype has never been previously detected at radio wavelengths. Radio monitoring is continuing on a nearly daily basis at these and other wavelengths in order to follow the supernova's rapidly changing behavior."

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S. Brandt, N. Lund, and A. J. Castro-Tirado, Danish Space Research Institute, report: "A bright gamma-ray burst was detected by the WATCH wide-field instrument on EURECA on Apr. 10.59661 UT. The burst was located at R.A. = 4h44m, Decl. = -7 00' (equinox 2000.0). The radius of the error circle is 45'. Follow-up observations in the optical and radio are encouraged."