Supplementary Table 1. Flux density of VLA J180839–202439, the transient radio source coincident with SGR 1806–20, as a function of both time and frequency, as measured by the VLA, ATCA, WSRT and MOST. The epoch of the flare was 2004 Dec 27.89 UT. Uncertainties in each flux measurement are given at the 1-σ level. All telescopes carried out interferometric synthesis imaging of the field of SGR 1806–20 to make these measurements. The absolute flux density scales were set using bright standard calibrators; on several days, different telescopes observed the source near simultaneously and obtained near identical flux density measurements, indicating the reliability of this calibration. Phase calibration was carried using regular observations of nearby bright compact sources. At times when VLA J180839–202439 was bright enough, self-calibration in phase only was also applied. The data were then Fourier transformed to the image plane, deconvolved using the point response derived from the synthesis transfer function, and then convolved with a Gaussian beam corresponding to the diffraction limited resolution. Flux densities were then extracted in three ways: by integrating the surface brightness of the source, by fitting the image of the source to a Gaussian, and by modelling the source as a Gaussian in the complex visibility plane — results for total flux densities were consistent among these three approaches. The data with lower spatial resolution (most notably the MOST and WSRT observations) suffered from confusion from the bright radio source[1,2] VLA J180840–202441, 14″ to the east of SGR 1806–20, associated[3] with the Luminous Blue Variable (LBV) 1806–20. For these data, difference imaging and background subtraction were carefully applied to extract the radio flux density of the transient source. The estimated uncertainties account for the systematic effects associated with this approach.

Mean Epoch (UT)	Days after Flare	Telescope	Flux Density (mJy)					
			0.84 GHz	1.4 GHz	2.4 GHz	4.8 GHz	6.1 GHz	8.5 GHz
Jan 03.83	6.93	VLA	...	172±4	...	80±1	...	53±1
Jan 04.52	7.62	WSRT	...	152±22	...	...	...	...
Jan 04.61	7.71	VLA	...	146±7	...	66±3	...	41±2
Jan 05.26	8.36	ATCA	...	120±7	93±2	60±1	...	36±2
Jan 05.66	8.76	VLA	...	...	...	57±3	...	31±2
Jan 05.85	8.95	ATCA	...	117±5	88±2	53±1	...	29±1
Jan 06.15	9.25	MOST	140±30	...	...	...	...	...
Jan 06.24	9.34	ATCA	...	103±2	71±2	46±2	...	26±1
Jan 06.85	9.95	ATCA	...	91±2	66±1	39±2	30±2	...
Jan 06.85	9.95	VLA	...	90±2	...	39±1	...	24±1
Jan 07.06	10.16	MOST	120±15	...	...	...	...	...
Jan 07.20	10.30	ATCA	...	87±3	54±1	...	...	...
Jan 07.44	10.54	WSRT	...	83±6	...	...	...	...
Jan 07.90	11.00	VLA	...	75±4	...	28±2	...	17±1
Jan 08.06	11.16	MOST	90±15	...	...	...	...	...
Jan 08.19	11.29	ATCA	...	64±5	40±2	25±2	21±1	...
Jan 09.06	12.16	MOST	75±15	...	...	...	...	...
Jan 09.07	12.17	ATCA	...	53±4	36±2	21±1	...	12±2
Jan 10.07	13.17	ATCA	...	39±2	29±1	17±1	...	9±2
Jan 10.49	13.59	WSRT	...	36±8	...	...	...	...
Jan 10.60	13.70	VLA	...	...	...	...	...	9.0±0.5
Jan 12.05	15.15	MOST	35±15	...	...	...	...	...
Jan 12.06	15.16	ATCA	...	28±2	20±1	12±1	10±1	8±1
Jan 13.74	16.84	VLA	...	...	...	...	...	5.8±0.2
Jan 14.08	17.18	ATCA	...	25±3	19±2	10±1	8±1	6±1
Jan 16.08	19.18	ATCA	...	17±4	...	7±1	5±2	4±1
Jan 16.62	19.72	VLA	...	...	...	...	...	4.0±0.1

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