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Source parameters and scaling laws of seismic sequences occured in Friuli Venezia Giulia (North-eastern Italy) and Western Slovenia.

Kravanja S. (1), Franceschina G. (2), Bressan G. (1)

(1)Istituto Nazionale di Oceanografia e di Geofisica Sperimentale-OGS, Centro Ricerche Sismologiche, Via Treviso 55, 33100 Cussignacco, Udine, Italia. Ph.: +39 0432 522433, Fax: +39 0432 522474. (2)Istituto Nazionale di Geofisica e Vulcanologia-Sezione Sismologia Applicata, Via Bassini 15, 20133 Milano, Italia. Ph.: +39 02 23699280, Fax.: +39 02 23699458.

The source parameters of two seismic sequences (Kobarid 1998 and Monte Sernio 2002) and of a swarm (Claut 1996) occured in Friuli Venezia Giulia and Western Slovenia have been computed.

The Claut swarm (Western Friuli, January 1996-June 1996) is characterized by roughly 150 events; the main events occurred on January 27 (Ml=3.8), February 27 (Ml=4.3) and April 13 (Ml=4.5). The fault plane solutions of the main events are mainly thrust mechanisms, while the main aftershocks show variable fault plane solutions. The main event (April 12, 1998-Ml=5.7) of the Kobarid sequence (Western Slovenia) is followed by about 800 events: the largest aftershock is characterized by Ml=4.6 while roughly 20 events are characterized by Ml=3.0-3.8. The fault plane solution of the main shock is a strike-slip mechanism, while the main aftershocks show mostly normal fault mechanism and the remaining are strike-slip and thrust mechanism. The fault plane solution of the largest aftershock is characterized by thrust mechanism. The Monte Sernio seismic sequence (Northern Friuli) starts at February 14, 2002 (Ml=5.1) and it is characterized by a small number of aftershocks (about 100, Ml$<$3.0). The main event shows a thrust focal mechanism, the aftershocks are characterized mainly by normal fault mechanism .

The source parameters have been determined from the records of the Zoufplan and Bernadia stations, belonging to the Rete Sismometrica del Friuli Venezia Giulia (man-

aged by the Centro Ricerche Sismologiche of the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale-OGS). They are characterized by negligible local amplification effects. Seismic moment, source radius, seismic energy, Brune stress drop, apparent stress and RMS stress drop are computed according to Brune (1970, 1971), Boatwright (1980) and Hanks & Mc Guire (1981). S-wave spectrum have been corrected by attenuation effects taking into account geometrical spreading, scattering and anelastic attenuation.

The fault radius versus seismic moment relationship is in agreement with the constant stress drop scaling law also for the events characterized by Brune radius down to 150 m. The average Brune stress drop is equal to 0.69, 0.89, 0.79 MPa in Claut 1996, M.Sernio 2002 and Kobarid 1998 respectively. The seismic radiated energy (Erad) increases with respect to seismic moment (Mo) with the following scaling laws:

Log Erad=1.7Log Mo-14.6 (Mo=1.7x10^{12} - 1.6x10^{15} Nm)

Log Erad=1.4Log Mo-11.2 (Mo=2.3x10^{12}- 8.4x10^{15} Nm)

Log Erad=1.2Log Mo- 8.4 (Mo=2.1x10^{13} - 1.1x10^{17} Nm)

in the Claut (1996), Monte Sernio (2002), Kobarid (1998) respectively.

The apparent stress distribution versus seismic moment is characterized by a smaller spread with respect to Brune stress drop distribution. By comparing the radiated energy distribution of the seismic sequences and swarm, we could observe that most of the energy is released in the main shocks of Kobarid and Monte Sernio sequences, while in the Claut 1996 swarm it is gradually released.

The ε parameter (Zuniga 1993) has been proposed to analyze possible variations in the stress release mechanism. The Claut 1996 swarm is characterized by values close to Orowan model (final stress is equal to frictional stress). The two sequences show a strong variability on the ε parameter (between 0.5 and 1.2 on the Monte Sernio sequence and between 0.6 and 1.4 on the Kobarid sequence), therefore between the "partial stress drop" ($\varepsilon < 1$, final stress greater than frictional stress) and "overshoot" ($\varepsilon > 1$, final stress lower than frictional stress).

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