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Testing the Antelope software suite to realize a distributed seismic database among Austria, Northeastern Italy and Slovenia

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Since 2002 the Zentralanstalt für Meteorologie und Geodynamik (ZAMG, <http://www.zamg.ac.at/>), the Centro di Ricerche Sismologiche (CRS, <http://www.crs.inogs.it>) of the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), the Dipartimento di Scienze della Terra (DST, <http://www.dst.univ.trieste.it/>) of the Università di Trieste and the Agencija Republike Slovenije Za Okolje (ARSO, <http://www.arso.gov.si/>) are involved in the EU INTER-REG IIIA project “Trans-national seismological networks in the South-Eastern Alps”. The Antelope software suite has been chosen as the common basis for real time data exchange, rapid location of earthquakes and alerting. The Antelope software suite has the capability to exchange data in real time among data centres: for this purpose the standard “orb2orb” software module is used. It uses a proprietary protocol and a point-to-point client/server architecture to exchange data. The last release of the Antelope software suite contains a more sophisticated version of this data exchange module: it is named “orbxchange”. “orbxchange” is a multithreaded version of “orb2orb” which supervises multiple “orb2orb” copies specified in a parameter file; it has the option of switching to alternate servers when no data is being copied from the primary. A distributed real time seismic database has been so established by connecting ZAMG, CRS/OGS, DST/UTS and ARSO Antelope servers with “orbxchange” modules. A test of the above described “orbxchange” features has been conducted artificially shutting down the Antelope servers and/or the data links between them: the results in the data coverage of the multiple copies of the distributed database will be shown. The expected improvement in data availability not only will be very useful for the institutional activities (like rapid earthquake location with

magnitude estimation) of the four institutions involved in this test, but moreover its natural extension will be in more mission critical applications, like in public civil protection applications and rapid notification of inherent authorities.