

HORA – AN AUSTRIAN PLATFORM FOR NATURAL HAZARDS AS A NEW WAY IN RISK COMMUNICATION

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While the EU Water Framework Directive (WFD) does not yet contain provisions related to flood prevention, the disastrous flood events in recent years have tempted the EU Commission to draft a special Flood Directive. According to the Directive, the new law shall help to „reduce and manage flood-related risks to human health, the environment, infrastructure and property“. It also states that the WFD „does not take into account future (flood) risks caused by climate change“. The main objectives of the EU Flood Directive therefore are the completion of flood risk maps by 2013 at the latest and the presentation of flood risk management plans focusing on prevention. The Explanatory Memorandum of the directive proposal also suggests that private parties shall be involved in the planning process and draw benefit from synergies. The public participation shall be coordinated with the participation requirement laid down in the WFD. One initiatives launched in Austria in summer 2006 demonstrate that public participation not only bears the risk of a partial transfer of responsibility by the authorities; it may above all prepare the ground for entirely new approaches and create new links. The recent installation of an internet platform for natural hazards in Austria underscores the importance of involving private parties in natural disaster protection. This public-private partnership (PPP) between the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) and the Austrian Insurance Association (VVO) was launched in the wake of the 2002 flood disaster. The first project phase, the Austrian flood risk zoning system called HORA (screenshot see fig. 1), has now been accessible on the Web since June 2006 (together with an earthquake risk zoning). In accordance with a risk partnership concluded between federal government, insurance companies and private parties, the project initiators seek to offer the public a preliminary risk assessment tool for evaluation of their home, industrial enterprise, of infrastructure. Digital hazard maps shall provide information on 30-year, 100-year and 200-year flood events as they occur alongside the 26.000-km-long domestic river network. Entering an address on the menu bar on the digital map of the homepage (www.hochwasserrisiko.at) the potential hazard of flooding is shown quick and plain. The ministry is simply overwhelmed that their homepage has meanwhile attracted clearly more than 50 million (!) visitors during the last 18 month. It was certainly invested a lot in the start-up of HORA with its focus on strengthening public risk awareness, prevention and self-precaution. The probability with which a certain block of land is immersed in water during a flood event can be calculated by means of hydraulic engineering methods. These have traditionally relied on statistical figures, which are known to be very inaccurate, especially when major events such as flooding are concerned. The Vienna University of Technology (TU) (Institute of Hydraulic and Water Resources Engineering) has dedicated many years to developing more accurate, process oriented risk assessment techniques. The starting points was to identify different flood-triggering

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processes and to divide them into specific categories as long-duration rainfalls, short-duration rainfalls, storms, rain following snow and snow melting.

Now that the TU team has for the first time assessed the overall runoff for all Austrian water bodies (incl. lakes) comprising 10.000 individual zones, HORA has since 2003 also benefited from this know-how. The new procedure basically consisted in analysing the aforementioned data derived from 1.000 water level readings all over Austria and matching them with data from the relevant governmental departments in the provinces. Then the data were matched with further specific information (geology, precipitation, hydraulic engineering, etc.) to also take account of the processes triggering floods. By means of mathematical regionalisation models these data were finally transferred to ungauged stretches of watercourse so as to produce the runoff data for 30-, 100- and 200-years events.

Runoff data was converted into water levels and flooding zones at the Institute for Applied Water Resources Management and Geoinformatics (IAWG) based in Ottobrunn near Munich. IAWG is the only scientific institution in Europe where such a complex task had already been successfully tackled before and which also has adequate computing capacities. The Vienna based land- forst- und wasserwirtschaftliche Rechenzentrum (LFRZ) is responsible for the IT development and administration of the HORA Webgis homepage and that HORA is as user-friendly as possible. The Internet version can zoom to a scale of 1:5.000. A conventional web browser is all that is needed to use this Geographic Information System. LFRZ experts have also conducted special assessments. For instance, they have linked 1,2 million geo-referenced addresses with the respective HORA zones through alphanumeric codes, which allows them to evaluate any potential damage.

HORA has already largely anticipated the public participation requirement envisaged in the proposal for an EU Flood Directive and prepared the ground for the above mentioned „risk partnership“. But there are further areas of natural disaster protection that need to be addressed. The HORA partners are currently establishing a common platform on which all digitalised hazard maps (from the Federal Water Engineering Administration) shall be compiled (example see fig. 2). This tool is also available on the internet since November 2006. Another task is to identify hail risk zones, thunderbolt risk zones and storm risk zones. The integration of risk zone plans for controlling the destructive forces of mountain torrents and avalanches is also under debate. But already from a current point of view, one can say that HORA is a unique risk platform by European standards as it provides extremely detailed information and can be accessed by anyone.

Fig. 1: Flood risk zoning Austria (HORA)

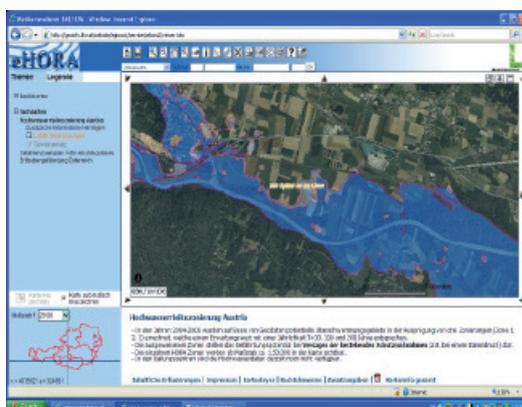
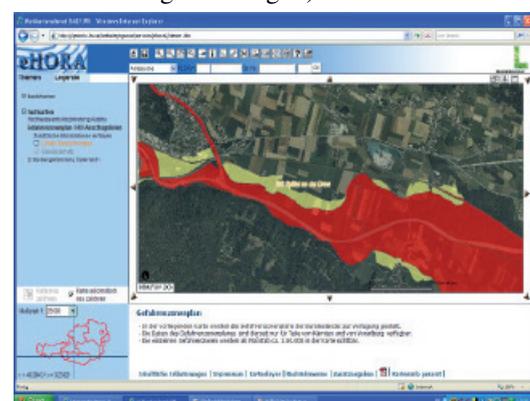


Fig. 2: Hazard map (same scale, same region as Fig. 1)



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