Relevant material for the C24 webpages has been collected by Kendra J. Williams & Keith Olson, Engineering Geology students of Prof. Scott Burns at Portland State University (USA) in the framework of a students assignment. The following material has not yet been screened and commented nor approved by the C24 chair and membership.

Relevant Papers

a. Hancock, P. L., Williams, G. D., 1986, **Neotectonics**: Journal of the Geological Society: Geological Society of London, vol. 143, no. 2, p. 325-326.

Abstract: The study of neotectonics is carried out by workers from a wide variety of disciplines, including structural geology seismology, regional geophysics, geomorphology and engineering geology. Landsat MSS imagery is a particularly effective tool for the investigation of neotectonic structures. The aim of the meeting was to bring together workers from the various contributory disciplines in order to discuss the development of modern techniques in each subject area. These modern approaches were exemplified by descriptions of neotectonically active regions ranging from NW Europe to China.

b. Harrison, M. & Forster, A. 2009. **The assessment of national scale geohazard potential through the application of GIS modelling**. In: Culshaw, M. G., reeves, H. J., Jefferson, I. & Sspink, T. W. (eds) Engineering Geology for Tomorrow's Cities. Geological Society, London, Engineering Geology Special Publications, 22 [on CD-ROM insert, Paper 286].

Abstract: Geological events with the potential to cause harm are commonly called 'Geohazards' and represent a significant, but often unrecognised, threat to people and property in Britain. This is most easily demonstrated in terms of the additional costs during construction incurred by the civil engineering industry due to unforeseen ground conditions and by post construction losses incurred by the insurance industries due to building damage. Home buyers are becoming aware of the dangers and an assessment of geohazards including swelling and shrinking clays, running sand, compressibility, landslide, collapsible ground and dissolution is being undertaken more frequently by conveyancers as part of the house-buying process. To meet these increasing needs the British Geological Survey has been working since 2001 on an innovative assessment method to improve on and replace its existing and widely used GHASP dataset. The programme, called GeoHazarD, has created 6 national scale geohazard datasets that indicate the potential for these hazards to be a problem anywhere in Great Britain. For the first time these have been produced using a rule-based technique that assesses the whole country using standard GIS tools, building on the published digital vector geological data, DiGMapGB. GeoHazarD integrates expert knowledge, national databases, multi-criterion analysis and a flexible rule based approach to model the geohazard datasets. One of

the major advantages of this system is that there is a now a fully auditable trail leading to the final classification. This allows the assessment to be updated automatically following a revision of the geological mapping, an improved understanding of the geohazard process and the inclusion of refinements based on local knowledge of an area. This paper gives an overview of the techniques used and discusses the application of GIS to a project of this size and nature.

c. Lianping Xie, Luojia Zhong, Shangde Xiao, Yanlong Zhou, "**The Research of Geological Hazards Warning and Forecast System Based on Rainfall Model**," Database Technology and Applications, International Workshop on, pp. 711-714, 2009 First International Workshop on Database Technology and Applications, 2009

Abstract: This paper is according to the illustration of intensity of rainfall--duration of rainfall and the critical precipitation theory which refers to the relationship between rainfall and the happening of landslides, taking the main types, scale, time and spatial distribution and the actual extent of damage of geologic hazards in Hubei province into consideration, establishing a critical precipitation and early warning and forecast criterion model of regional geologic hazards based on the research on the relationship between rainfall and the spatial distribution, coming up with a solution of early warning and forecast system of geologic hazards, which is on the base of Internet web or communication, WebGIS (MapGIS IMS), and the architecture of SQL Server and its relative Operating Systems.

d. Pascal, C., Stewart, I.S., and Vermeersen, B. L. A., 2010, **Neotectonics, seismicity and stress in glaciated regions**: Journal of the Geological Society, vol. 167, no. 2, p. 361.

Abstract: The melting of large ice caps over the span of many centuries to several millennia is an important agent of dynamic change within the solid Earth (Fig. 1). It induces significant redistributions of mass on the surface of the Earth, drives sea-level and land elevation changes, and readjusts lithospheric stresses in formerly glaciated areas and adjacent regions, effects manifest as increased seismicity and, eventually, in powerful earthquakes. It was an understanding that was apparent a century ago (De Geer 1888; Kolderup 1913) but has found increased support during the 20th century. In particular, the discovery of the 'end-glacial' faults of northern Scandinavia (Kujansuu 1964; Lagerbäck 1979; Olesen 1988) proved definitively that glacial loads and, therefore, climate can act as tectonic drivers over very short geological times.

e. Radan, K., Babaka, J., 1992, **A new view on neotectonics**: GeoJournal, vol. 28, no. 4, p. 413-415.

Abstract: Neotectonics - the discipline examining the youngest history of the Earth in terms of geotectonics — should be complemented by aspects based on other geological sciences (geochemistry, geophysics) as well as geography and geodesy. From the viewpoint of the Earth's

history, neotectonics can be regarded as a discipline studying, above all, the Earth's crust and the changes that occurred there in the time span from the Badenian to the Recent. For this reason, the last phase of the Alpine geotectonic stage, which extended from the Oligocene to the base of the Lower Badenian, should be termed pre-neotectonics.

f. Pearce, L. (2003) '**Disaster management and community planning, and public participation: how to achieve sustainable hazard mitigation**', *Natural Hazards*, Vol. 28, pp.211–222

Abstract: The paper offers first a brief historical overview of disaster management planning. Second, it reviews Australian and American research findings and show that they urge the field of disaster management to shift its focus from response and recovery to sustainable hazard mitigation. It is argued that in order for this shift to occur, it is necessary to integrate disaster management and community planning. Current practice seldom reflects such a synthesis, and this is one of the reasons why hazard awareness is absent from local decision-making processes. Third, it is asserted that if mitigative strategies are to be successfully implemented, then the disaster management process must incorporate public participation at the local decision-making level. The paper concludes with a case study of California's Portola Valley, which demonstrates that when public participation is integrated into disaster management planning and community planning, the result is sustainable hazard mitigation.