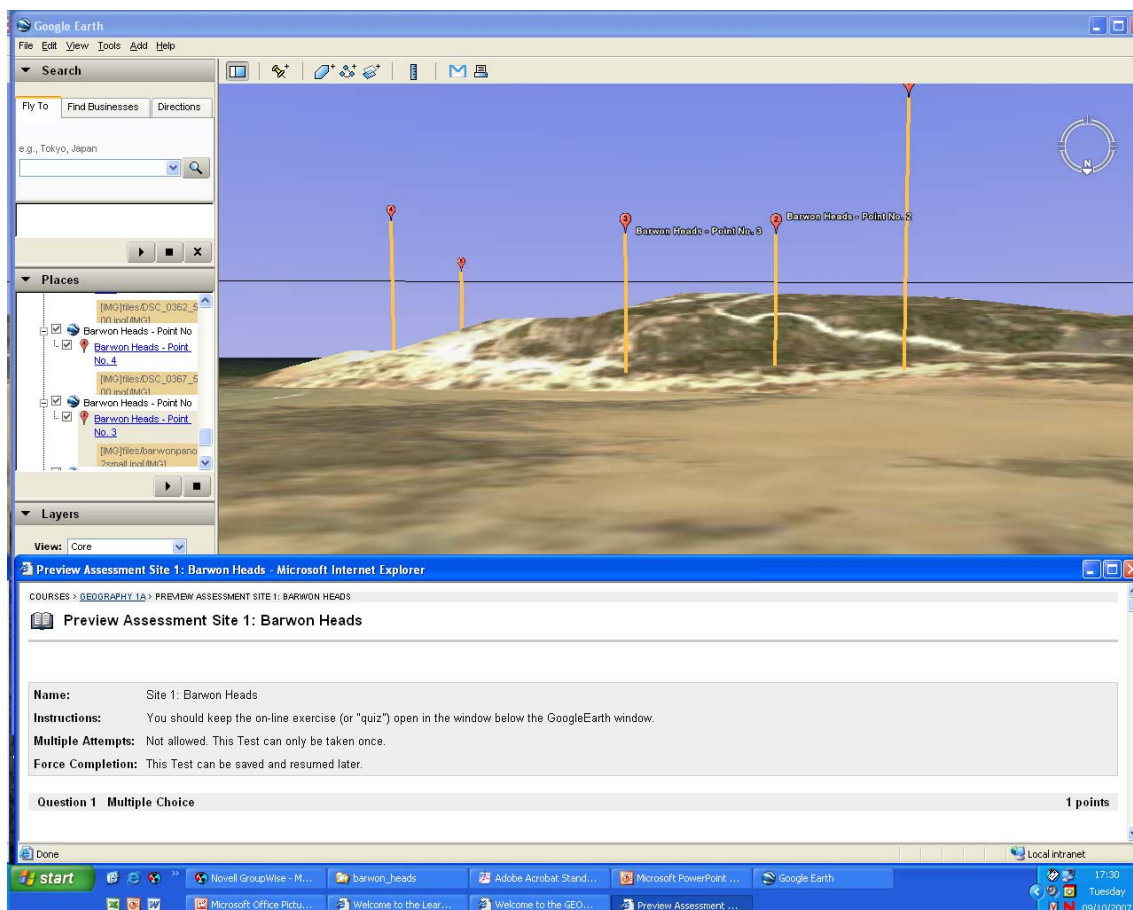


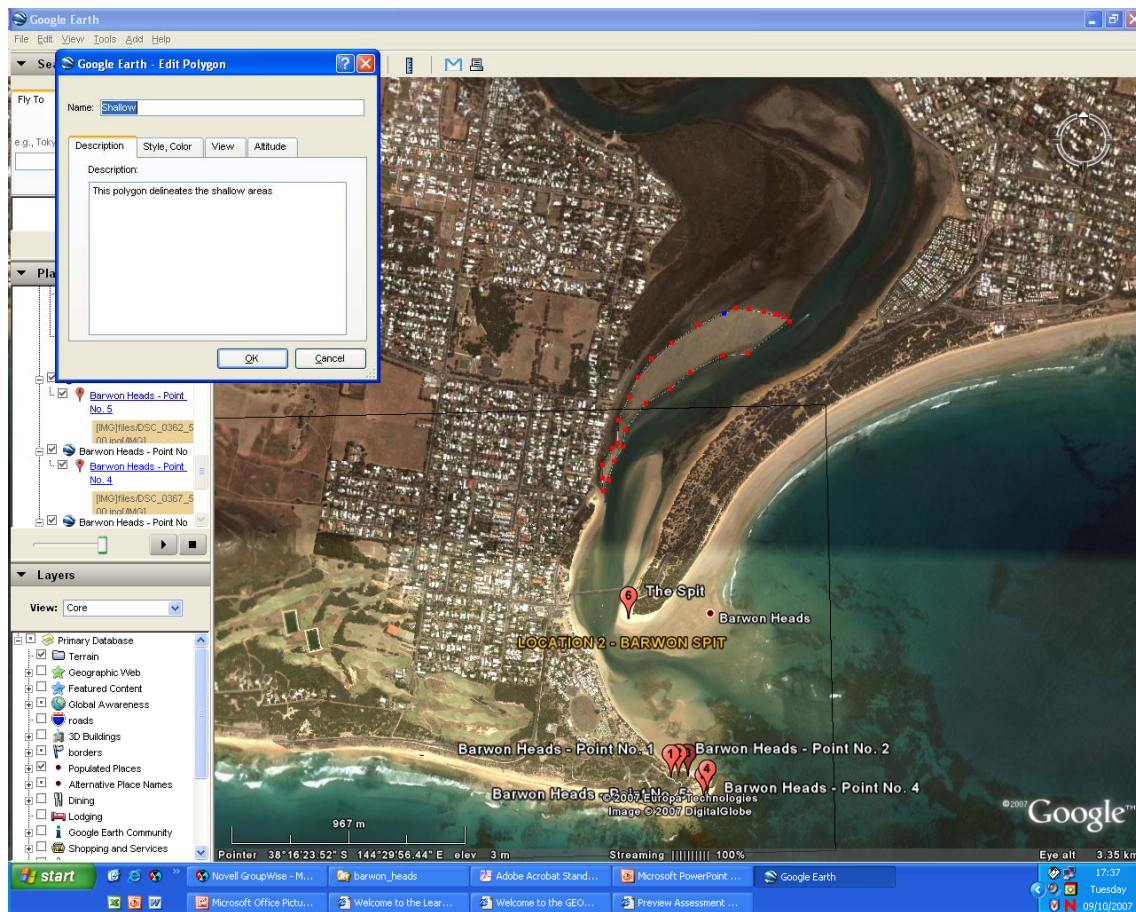
A VIRTUAL GEOMORPHIC ATLAS FOR UNDERGRADUATE TEACHING OF GEOMORPHOLOGY

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There are many computer-based tools that can be used for the teaching of undergraduate university geography. However with recent developments in virtual atlases and globes, those that exist in virtual or electronic space (such as Google Earth and Virtual Earth), the opportunity exists for applying these to the teaching of physical geography. A project is currently underway in the School of Mathematical and Geospatial Sciences at RMIT University funded under the auspices of the Learning and Teaching Investment Fund (LTIF). Google Earth is being used for the basis of teaching geomorphology to undergraduate students of physical geography. Known as the “Virtual atlas of significant geomorphic sites in Victoria” the aim of the project is to develop a virtual field excursion of major geomorphic sites throughout Victoria. Six sites of significance were chosen; each incorporating a landform created by a different geomorphic process. For each of these sites, background information relating to the processes that have generated each of the landforms found, as well as associated photographs and panoramas have been created for specific locations at each of the six sites. Formative questions have been developed within the RMIT corporate Distributed Learning System (DLS) and have been linked to the sites. Student feedback has been positive and it should be possible to collaborate with international colleagues in order to offer a wide variety of global locations.





Screen shots taken from the Virtual Atlas

Within the discipline of Geospatial Science, three undergraduate programs are offered, namely: Surveying; Geomatics; and Cartography and Geographical Visualisation. Each of these programs is designed to educate students in the areas of geospatial science and as part of this, there is an underlying need for students to be aware of the processes that have formed the surface shape of the earth on which they are working. In the first year, students are introduced to a wide range of fundamental courses including Physical Geography. Within that course, there is a large component devoted to the study of basic geomorphology. Geomorphology is the science concerned with the form of the land surface and the processes which create it.

Due to the nature of the material being taught in Physical Geography, traditionally in lectures and practical exercises, examples from across the Earth have been used, via PowerPoint slides, to illustrate various tectonic and gradational geomorphic processes. The students have always responded well to this approach, and have appreciated the chance of “virtual visits” to places far and wide. Most of the well known texts used for the undergraduate teaching and learning of geomorphology have been written by US authors with an emphasis on US examples. However there is a shortage of examples from other locations, and, in particular, Australian examples, even though many excellent examples exist. Given budgetary and time constraints, and the large numbers of students undertaking the course, conducting fieldwork has always been a difficult logistical exercise. The virtual atlas is designed to take students on a virtual excursion of sites around Victoria without the necessity to physically visit these locations. Whilst it is recognised that a virtual field trip cannot provide the full range of experiences that come from an actual visitation, it does have a number of distinct benefits. For example the importance of removing complexity and the many “vagaries” found in the “real world” and drawing student attention to the specific issues and processes being taught in the course has educational merit. Virtual field trips enable students to work at their own pace and to repeat certain exercises until concepts are understood. They also

provide students with the mechanisms to work independently from wherever they choose and not be tied to one learning venue. However, given the importance of field work within geography, the virtual atlas is not designed to replace field work. Prominent professor of geography Carl Sauer recognised the importance of fieldwork in geography when he stated in 1956 that *...geography is first of all knowledge gained by observation...in other words the principal training of the geographer should come, wherever possible, by doing fieldwork.* Therefore as part of the virtual atlas we are developing a learning blog to be added to the DLS that will incorporate a site visit by students to a nearby locality of their choosing, which they will share via the Blog with other students in the class. This will provide a “real world” experience with exercises matched to the learning objectives for the virtual atlas.

Recently, a paper was presented on the Atlas at the Association of American Geographers conference held in Boston, Massachusetts in April where the Atlas was well received. A refereed conference paper discussing the Atlas is also being presented at the Queensland Spatial Sciences Conference to be held on the Gold Coast in July 2008.