sentation, it was theorized that, based on paleosol features, geochronology and gross stratigraphy, the Thelon paleosol likely developed during the same paleoweathering event as the Athabasca paleosol (described by Pagel), and the Hornby Bay and Elu Inlet paleosols. Together, these paleosols represent remnants of a widespread Proterozoic paleoweathering surface, now preserved as the Matonabbee unconformity. The final presentation (Zalba, Argentina) described Upper Proterozoic and lower Paleozoic paleoweathering records and paleosurfaces within the Tandilia system, Buenos Aires province. The day was concluded by a business meeting.

The first meeting of IGCP 317 was successful in bringing together geoscientists from many countries who have a common interest, thus permitting extensive personal interaction. Geomorphologists, pedologists, and geologists were able to meet, and discover what aspects of paleoweathering were considered important to other geoscientific groups, and what analytical techniques each group used. It became clearer, for example, that some presentations described "deep" paleoweathering in older rocks, relying extensively on mineralogical and geochemical signatures for their interpretation. However, in younger examples of paleoweathering, the more prevalent signatures of paleoweathering appear to be morphological features, soil horizonation, and organically formed structures. Whether the differences are a function of erosion level, biologic influence, or the influence of other soil-forming factors such as climate remains a challenging question. It also became clear that the extent of diagenetic overprinting of paleosols has not been realized and must be assessed, especially when studying Tertiary paleoweathering.

Papers based on the presentations at the meeting will be published in August 1992 in a special issue of the Earth Science series of the École des Mines de Paris. As well, IGCP 317 participants are currently working toward a worldwide inventory of paleoweathering records. It is hoped that much of the inventory will be complete for the second annual meeting of IGCP 317, to be held in conjunction with the Cuarta Reunion Argentina de Sedimentologia in La Plata, Argentina, between 5-9 October 1992.

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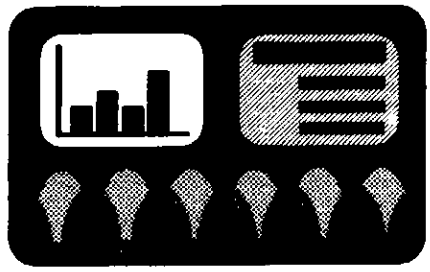

Palliser Triangle Global Change Observatory Workshop

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The papers of Captain John Palliser's 1857-1860 expedition eloquently describe the climatic sensitivity of the "dry prairies" of southern Manitoba, Saskatchewan and Alberta, which have become known as the Palliser Triangle (Spry, 1968). While Palliser could not foresee the critical agricultural importance this region would assume, he was aware of the harsh reality of drought. Understanding of past drought cycles is critically important to proper land management in this region, including the formulation of land use proposals under climatic change scenarios.

The Geological Survey of Canada (GSC) is establishing a Global Change Observatory in the Palliser Triangle. The historical climate record for this region generally encompasses less than 100 years, and needs to be placed within a geologic timeframe to better understand "natural" drought intensity and periodicity. By outlining the rates of geomorphic processes and the manner in which these rates have varied in the past with changing climate, it will be possible to provide meaningful assistance to future land-management. As such, the two main objectives of this project are: 1) to obtain a high resolution record of paleoclimatic change from lake basins within the region, with particular emphasis on the last 2000 years; and 2) to correlate contemporary and paleo-process data with (paleo)climate to ascertain past and present rates of geomorphic processes as influenced by climate.

The project will employ a co-operative multi-disciplinary approach involving both government and university researchers. In an effort to obtain input from individuals actively involved with, or interested in, climatic aspects of the geoscience record in the Palliser Triangle, the GSC held an organizing workshop in Calgary on 16-17 November 1991. Thirty-seven participants attended representing six federal, five provincial and fourteen university departments.

The first day of the workshop consisted of invited talks focussed upon the main objectives of the project. Four talks (John Smol, diatoms; Denis Delorme, ostracodes; Bob Vance, palynology; Bill Last, mineral sediments) dealt with aspects of the lacustrine record. Although certain limitations will be encountered owing to the unusual lacustrine environment of the region, it was clear from Vance's study of Chappice Lake that a useful paleoclimatic record can be developed by utilizing a variety of proxy data and dating by accelerator mass spectrometry (AMS). Tom Edwards reviewed the use of stable isotopes in paleoclimatic studies, emphasizing that isotopes provide a more direct climate signal than other proxy sources. Eric Neilson reported on the potential of dendrochronology from sites marginal to the Triangle as a means of obtaining a continuous paleoclimatic record. Dave Sauchyn emphasized a spatial perspective with regard to studying geomorphic processes, noting that practical applications of this project are dependent upon an ability to extrapolate site-specific data to a regional perspective. Willem Vreeken focussed upon the temporal variability of geomorphic processes in the Palliser Triangle as evidenced by a complex record of paleosols and inferred paleoprocesses.

On the second day of the workshop, participants convened in two groups, one to discuss the limnological aspects of the project and the other to discuss the terrestrial component. The limnological group discussed specific matters such as site selection, coring, sampling and analysis. The terrestrial group involved persons from a wide range of interests and, hence, their discussions were more general. There was agreement that the Cypress Hills are the hub of the Palliser Triangle, and that study sites should be located along radiating transects extending from the hub to the periphery of the Triangle. It was recognized that sites must represent both the pre- and post-settlement landscape, and be viewed in the context of open and closed geomorphic systems.

Numerous matters were raised during discussion sessions. Many related to project objectives, the role of the GSC and university researchers in the project, and money. The large volume of existing data relevant to this project was noted repeatedly, and initial efforts must focus on compilation of this data. It was agreed that the GSC could play a valuable role by simply finding out what individual researchers are studying and communicating this information to other interested parties.

As a result of the workshop, the GSC is forming two small working groups (lacustrine

and terrestrial) to provide advice concerning research the GSC will be conducting or supporting. Lake studies will begin with a preliminary coring program in February 1992, and continue in the summer with sub-bottom profiling, limnologic monitoring, and basin inventories. University-based researchers see the summer of 1993 as a practical objective for the initiation of detailed studies. The GSC plans to begin developing a process-monitoring network during summer 1992. Detailed surficial mapping (materials, slope, aspect and vegetation) will be conducted in conjunction with process monitoring.

To facilitate collaboration between individuals working in the Palliser Triangle, the GSC hopes to organize a second Palliser Triangle Global Change Observatory meeting and field trip, tentatively planned for the University of Regina in late August or early September of 1992. A traditional conference format is planned with researchers presenting results from individual projects. The recent workshop provided an important boost for the establishment of this new Global Change Observatory, and the organizers thank all participants for their efforts.

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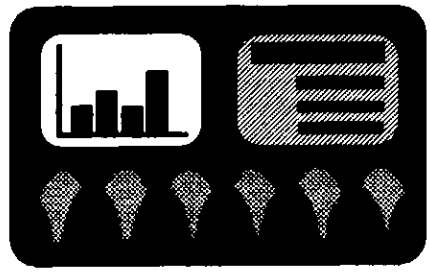
Accepted 3 January 1992.



Canadian Continental Drilling Program First 5-Year Plan Workshop

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The Canadian Continental Drilling Program (CCDP) is in the process of implementing its Pilot Project and first five-year plan of operations (Table 1). In order to brief the members of the CCDP Steering Committee and the community at large on the development of proposals, a half-day workshop was held at the Ministère de l'Énergie et des Ressources, Charlesbourg, Quebec on 27 November 1991.

The workshop was attended by 40 participants who listened to and discussed presentations on nine drilling-based proposals. The presentations were of considerable value to all concerned, dealing with areas of topical interest; most had evolved substantially since they were last presented at a National Discussion Meeting in August 1991.

The workshop was opened by a welcome to participants from Dr. Robert Lamarche, Sous-ministre adjoint, Exploration Géologique et Minérale, of the Ministère de l'Énergie et des Ressources. This was followed by presentations on individual projects.

Kapuskasing Pilot Project

Robert Mereu of the University of Western Ontario described the status of this project, which is currently under consideration by the Natural Sciences and Engineering Council of Canada (NSERC) for funding. Other contributors to the project are the Geological Survey of Canada (GSC), the Ontario Geological Survey (OGS), Amoco Canada and Inco.

The principal objective of the project is to identify the source of shallowly dipping packages of seismic reflections, and coincident intervals of enhanced electrical conductivity, in mid- to lower crustal, granulite facies, mafic gneisses and tonalites in the Kapuskasing Structural Zone (KSZ) of Ontario. LITHOPROBE seismics show that reflective zones can be traced from normal crustal depths of about 20 km to 1-2 km in the KSZ, that is, to within reach of a relatively inexpensive drilling investigation using conventional technology. A single vertical continuously cored 1.8 km hole is planned, using the high-speed diamond technology with wire line core recovery. Comprehensive logging of the hole is planned. Intensive interdisciplinary study of the hole and the recovered core will delineate the source of the reflections in terms of physical properties and will demonstrate their origin in terms of structural history, crustal construction process, and the possible role of fluids in the crust. The principal investigators for the project are R. Mereu (U. of Western Ontario), J.A. Percival (GSC), M. Mareschal (École Polytechnique) and M.H. Salisbury (Atlantic Geoscience Centre (AGC)/GSC) with expertise in downhole geophysics and fluids to be provided, respectively, by P.J. Killeen and J. Mwenifumbo (GSC) and S.K. Frape (U. of Waterloo). A further 40 investigators have expressed interest in participating in the project. The project has already received wide international interest in view of the potential for application of its results to the interpretation of the thousands of kilometres of seismic profiles and electromagnetic soundings of Precambrian cratons throughout the world, and in particular to the Canadian Shield with its great mineral wealth. Should the remaining funding be secured in the near future, drilling operations will take place in spring/summer 1992 with the first results available shortly afterward.

The Cretaceous-Tertiary (K-T) Boundary

Two proposals were outlined regarding the investigation of the events associated with the K-T boundary by drilling. The first of these, by Arthur Sweet (Institute of Sedimentary and Petroleum Geology (ISPG)/GSC, Calgary), aimed at work in Canada and the second, by Richard Grieve (GSC, Ottawa), concerned work in Mexico. The proposal outlined by Sweet forms the first part of the CCDP 5-Year Plan (see Table 1) and aims to sample the K-T boundary and its environs at three locations in Western Canada: the Turtle Mountain area of Manitoba, the Wood Mountain area of Saskatchewan, and the Cyprus Hills area in southeastern Alberta. This profile will enable sampling of the boundary in a number of environments, from marine conditions in Manitoba to coal swamp conditions farther west. The profile also provides a partial link between the known K-T boundary at the Manson impact structure in western Iowa and the possible K-T boundary at the buried Eagle Butte structure close to the planned Alberta hole. [The Manson impact structure is currently being sampled by drilling by the United States Interagency Coordinating Group for Continental Scientific Drilling.] Sweet summarized recent findings on the K-T boundary, including the recognition of a floral change in the middle of the boundary layer. Three continuously cored holes, each of about 250 m