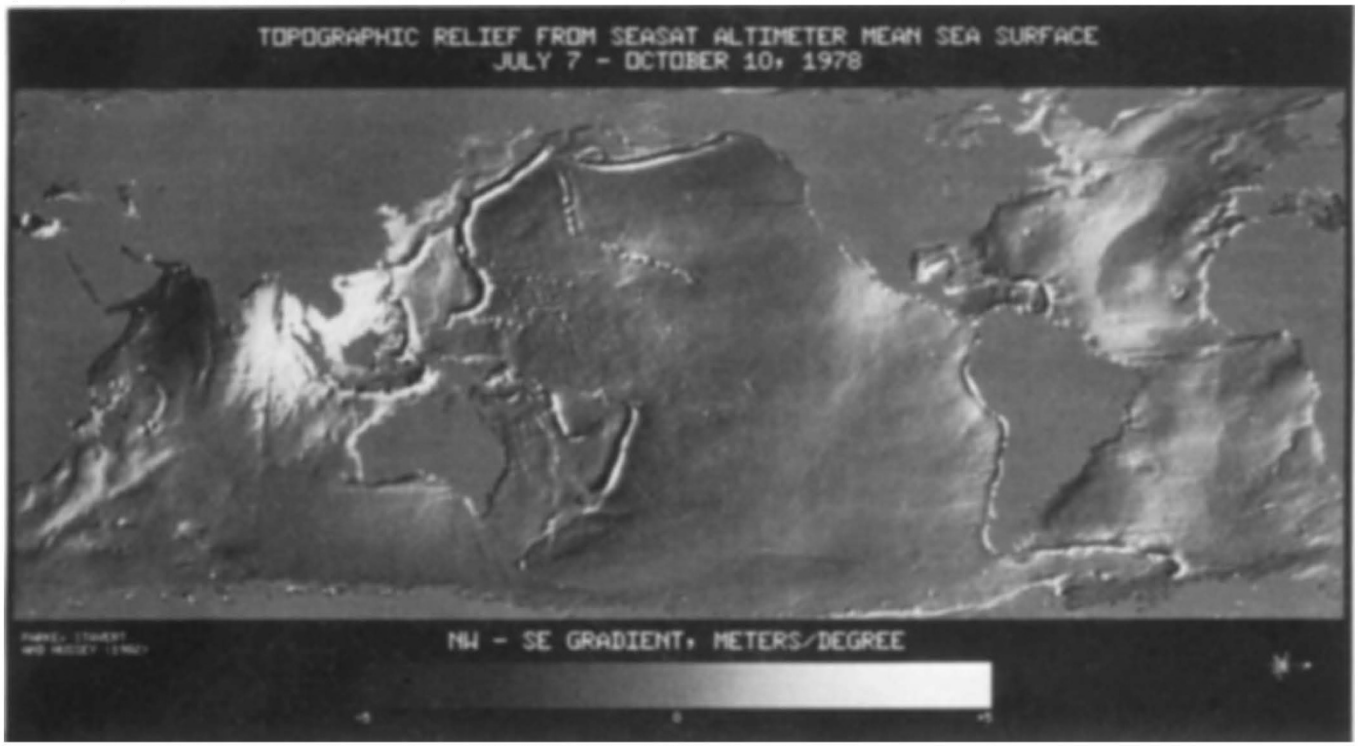


THE gravitational signature of tectonic features can be clearly seen in the topographical relief maps of the world's ocean surface shown above. Data from the Jet Propulsion Laboratory's Seasat oceanographic satellite were used to produce the map after processing to emphasize steep, small-scale features that tilt towards or away from the north-west.

The Mid-Atlantic Ridge and the trenches along the west and north-west margins of the Pacific Plate are clearly visible, as are the chain of Hawaian seamounts.

The extent to which a seamount affects the local gravity field depends on the age of the underlying crust when the seamount was formed. If the seamount formed on young flexible crust, the crust deforms around the seamount, compensating the effect of the seamount's extra mass. Seamounts formed on older, more rigid crust are not compensated in this way, resulting in a gravitational signature that is more apparent at the sea surface. For use of similar GEOS-3 altimetric data to investigate sea basin formation see *Nature* **299**, 117; *News and Views* **299**, 104; 1982. □

treatment[6]. Again, the secretion rate of patient-derived immunoglobulin was low. None was tumour type specific.

Coté (Sloan Kettering Institute, New York) described his work involving over 80 fusions with three different hybridoma systems — SK007 (which had been rendered free from mycoplasma infection[7]), LICR-LON-HMy2 and NS1, the standard mouse myeloma[8]. Immunoglobulin secretion rates varied from 1 to 100 $\mu g\ ml^{-1}$ with no consistent differences between the three fusion systems. Early cloning and stringent culture conditions seemed to be important prerequisites for success with inter-species hybrids if continued production of human immunoglobulin for long periods was to be achieved. Some human antibodies with interesting specificities to tumour cytoskeletal components were demonstrated by elegant immunohistological studies using human tumour lines. Using the lymphoid cell lines UC729-6, I. Royston (University of California, San Diego) was able to produce monoclonal antibodies which reacted with various cancer cell lines, but not normal lymphocytes, granulocytes, red cells or fibroblasts. These antibodies, although binding weakly to a variety of tumour cells, were in no way tumour specific. S. Clark (University of Glasgow) used diethyl pyrocarbonate[9] in concentrations near the mean lethal dose for myeloma cell lines as a selection mechanism for cells whose enzyme components were complemented after fusion. This allowed the outgrowth of hybridomas. He described work using the human myeloma RPMI 8226 and a sub-line of the EB4 myeloma — SJR22C. Again, there were problems of low fusion frequency and poor cloning efficiency.

Perhaps most interesting was D. Crawford's (Imperial Cancer Research Fund, London) account of making monoclonal anti-influenza and anti-rhesus D antibodies by infecting peripheral blood lymphocytes from donors with EVB. Several groups have tried this technique over the last few years without much success, the main stumbling block being the cloning of the EBV-transformed lymphoblast. Using a combination of *in vitro* stimulation by immunizing antigen and early cloning by limiting dilution, Crawford was able to demonstrate that not only could useful antibodies be produced but also the concentration of immunoglobulin produced was at least equivalent to the best human hybridoma systems now available. The necessary ingredients in the recipe for success are still unclear. Several groups are investigating the possibility of initial EBV transformation, selection of cells with the required antibody specificity and subsequent immortalization by cell fusion in a hybridoma system.

We are still unfortunately plagued by technical problems in the production of human monoclonal antibodies, not least in discovering ways of collecting those lymphocytes that produce antibodies with the specificities being sought for different experimental purposes. It is too early to know whether all the current efforts will result in biologically interesting molecules with fundamental and clinical potential or just additional reagents with little difference from other available rodent monoclonal antibodies that can be obtained with significantly less effort. Nonetheless, the prospect of the former result will stimulate many groups to study and develop human hybridoma systems in the near future. The outcome could be exciting. □

1. Levy, R. & Dilley, J. *Proc. natn. Acad. Sci. U.S.A.* **75**, 2411 (1978).
2. Schlom, J., Wunderlich, D. & Teramoto, U. *Proc. natn. Acad. Sci. U.S.A.*, **77**, 6841 (1980).
3. Sikora, K. & Wright, R. *Br. J. Cancer* **43**, 696 (1981).
4. Edwards, P., Smith, C., Neville, A.M. & O'Hare, M.J. *Eur. J. Immun.* **12**, 641 (1982).
5. Burk, K.H., Drewinko, B., Trujillo, J.M. & Ahearn, M.J. *Cancer Res.* **38**, 2508 (1978).
6. Sikora, K., Alderson, T., Ellis, J., Phillips, J. & Watson, J. *Br. J. Cancer* (in the press).
7. Kaplan, H. & Olsson, L. *Proc. natn. Acad. Sci. U.S.A.* **77**, 5429 (1980).
8. Kohler, G. & Milstein, C. *Nature* **256**, 495 (1975).
9. Wright, W.E. *Expl Cell Res.* **112**, 395 (1978).

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