

NEWS AND VIEWS

A Better Future for ISC?

FOUR years ago there was speculation in *Nature* (222, 1216; 1969) on the future of the International Seismological Centre in Edinburgh. The ISC, it was suggested, should go into the seismogram storage and distribution business and leave estimation of the principal parameters of earthquakes to the United States Coast and Geodetic Survey. The advice was not taken, which is probably just as well. The USCGS no longer exists and though its Preliminary Determination of Epicentres service has survived, the US Geological Survey, which assumed this responsibility, could well be looking for a suitable opportunity to transfer this to an internationally supported body. World Data Centre A now satisfies most needs for seismograms and WDC B is being encouraged to be more effective.

The ISC, meanwhile, has effected a welcome facelift. There seems an end to the computing difficulties which have beset the ISC since its inception. The *Bulletin* of principal data now appears monthly in a computer typeset format. The lag time of four years has been reduced to two at the behest of the governing council, thereby allowing data from even the most inhospitably sited of 800 or so reporting stations to be included. There are now twenty-four members (trustees) represented on the governing council contributing annually some £60,000 in sums of £200 upwards towards the income of the centre in Edinburgh. The deed which established the ISC in its new structure was sealed by the hosts (the University of Edinburgh) and the Royal Society. The day-to-day work of the centre is carried out by an international staff of ten under a full-time director on leave of absence from the US Geological Survey. This healthy looking organisation has come a long way in the past four years.

The primary product of the ISC is a definitive listing of the principal data of some 12,000 earthquakes per year, having magnitudes of about m_b $4\frac{1}{2}$ and greater. This is more than double the number published by the PDE service after its six-week data cut-off. The centre's amplitude and supplementary phase material, as well as its number of contributing stations (which include a well distributed sample from the Soviet Union), is superior to all others. The cost of printing of the bulletin is now the principal cause of concern. The idea of publishing it as microfiches is understandably very unpopular even at a third of its cost, yet how often, and by how many seismologists, is the full suite of bulletin data used? Not often is the probable answer and, in any case, major users almost certainly prefer the bulletin tapes.

An idea which may not have been dusted off in recent years is the use of a microfiche bulletin together with the centre's *Regional Catalogue*. The catalogue contains hypocentres, origin times and magnitudes listed by region. To many users the catalogue is the most useful publication, providing a geographical sort for selecting small

groups of earthquakes (or explosions, which are separately catalogued). Detailed information may be subsequently extracted from the bulletin. At a quarter of the bulletin printing costs, the substitution of a monthly catalogue for the bulletin makes good sense. The bulletin could be purchased *en bloc* for national centres, or separately as required by individual users. This might satisfy the majority of seismologists and all earthquake engineers.

A most useful and, it is to be hoped, growing function of the centre is the provision of special services. Custom data sorting is one example, and the UNESCO contracts for the production of the *Manual of Seismological Observatory Practice* and the seismicity map of South-East Asia are others of the way skills of a highly professional group are being exploited. The centre also provides a home (and funds if the work is likely to be beneficial to the centre's principal task) for seismologists whose research at the time requires immediate access to the world's premier collection of earthquake data.

The central reason, however, why the ISC is internationally supported is for the organised data it publishes. The only advantage of the bulletin is that it produces under one cover what is already available by searching the records of a number of centres like the PDE service and the Soviet and BCIS bulletins. Although most seismologists feel that the saving in time, as well as the greater accuracy of the additional processed data, are sufficient reasons for the existence of the centre, others want searches made for hypocentres of earthquakes not reported elsewhere, and would like to see attempts made to include data descriptive of the seismograms. It is doubtful whether the latter can ever be a substitute for personal reading of the seismogram. The attempts which the centre is already making to invite fuller reporting of phase arrivals and amplitudes may well fill all reasonable needs. The location of earthquakes from a mass of unassociated P times is a more controversial subject. Judged by the annual number of published epicentres, it is unlikely that the bulletin misses many earthquakes of magnitude m_b $4\frac{1}{2}$ or more, particularly in the Northern Hemisphere, so the principal contribution would be events up to half a magnitude below this threshold where seismological interests are narrower.

The safest criterion whereby to define a generally useful threshold might be that of unbiased world seismicity, and especially to equalise the magnitude threshold of the southern (oceanic) half of the globe with the northern. Seismologists must decide and at present only those from a fifth of the countries most concerned have any substantive influence on the scientific policies of the ISC. Curiously, some of the most seismically affected countries are unrepresented; so are international oil and construction companies which consult the centre regularly. Between them they could put the welfare of the ISC beyond doubt.

P. D. M.