

REVIEW OF CATALOGUES OF CANADIAN EARTHQUAKES

by

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MEMORANDUM

NOTE DE SERVICE

TO / A → Dr. M.J. Berry

FROM / DE P.W. Basham

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SUBJECT / OBJET Review of Catalogues of Canadian Earthquakes

Meetings of people concerned, Basham, Horner, Leblanc, Milne, Stevens and Wetmiller, have been held to assess the progress that has been made in reducing the backlog of annual catalogues of Canadian earthquakes, to revise, as required, the previous (10 May 74 memo from Berry to Director) schedule for eliminating the backlog, to assess the current catalogue that is being produced and to consider distribution of monthly preliminary lists of Canadian earthquakes to interested external agencies.

1. Schedules for Annual Earthquake Catalogues 1968-1973

The progress that has been made on clearing the backlog will be apparent by comparing the status of the various years detailed below with that given in the May memo. With some circumstances that will be clarified below the progress in general is assessed to be completely satisfactory. In most cases target dates specified in the May memo remain acceptable; some are altered and others are made more specific.

It is abundantly clear to the staff of the Seismicity, Seismic Hazards and Applications Section, and in particular to the individuals named above, that the important projects that so clearly require our attention will not be handled efficiently until the backlog catalogues have been eliminated. Thus the principal commitment we have made to ourselves, and through this memorandum are making to you, is that there will be no outstanding annual catalogues by the end of 1975. This highly desirable, overall target date is specified with the knowledge of all present major project commitments of the individuals involved through to the end of 1975, and would be negated only by a major unforeseen project (a major earthquake, a serious outbreak of seismic activity near a reservoir, etc.), the possibility of which cannot be excluded from our general planning.

Although more details of the present plans for achieving this are outlined below for each outstanding catalogue, we prefer this to be the principal commitment in order that we can retain some operational flexibility concerning how it is actually achieved. The reasons for requesting this flexibility relate to (a) the unpredictable demands that are made from time to time on individuals, and (b) efficient utilization of casual manpower as it becomes available. Any requirements for flexibility relating to (a) and (b) above that can be anticipated now are included below in the outline for each catalogue year.

- 1968 Stevens has responsibility for producing this catalogue; data reduction has been done, in addition by Horner, Leblanc, Milne and Wetmiller. Remaining to be done are 1½ months of data reduction, computer formatting, map plotting, and text preparation. The target date for final manuscript is December 1974. Contingency plans include utilization of casual manpower if Stevens becomes over-committed on other projects. The target date is also conditional on the availability of the digital map (see below).
- 1969 Page proofs have been returned to the printer; distribution is expected shortly.
- 1970 Horner has responsibility for producing this catalogue; McMechan and Milne are doing the western data reduction. Horner is at present working on June; McMechan and Milne have completed data reduction for the year and are working on formatting and bulletin correlations. The target date for the final manuscript is March 1975. We intend to assign casual PC1 manpower to work primarily with Horner; thus, completion may be expected in advance of the target date.
- 1971 Horner will have responsibility for producing this catalogue; McMechan and Milne will do the western data reduction. Although Wetmiller has done some preliminary data reduction, this catalogue year remains essentially untouched. The target date for final manuscript is December 1975. If the casual manpower produces an early completion of the 1970 catalogue, completion of this catalogue may, in turn, be expected in advance of the December 1975 target date.
- 1972 Basham has responsibility for producing this catalogue. Monthly lists of locatable events, with varying standards, have previously been prepared by Wetmiller (7) and by Stevens, Leblanc, Horner, McMechan and Schieman (one each). Basham and Weichert have each completed 2 months data reduction to the required standard. Basham and Leblanc are committed to bringing the remaining 8 months up to standard with a target date for the final manuscript of July 1975.
- 1973 Wetmiller has responsibility for producing this catalogue. July through December were completed by Wetmiller to the required standard as monthly lists of current seismicity. January through June require computer reformatting and checking of single-station events. Casual manpower may be utilized to relieve over-commitment of Wetmiller and a rough target date for the 1973 catalogue has been set as March 1975.

Digital Maps It is intended that maps of Canadian earthquakes in all of the pending and future catalogues be produced on a digital (Calcomp) map of Canada with computer plotting of epicenters. Anglin is preparing the digital map base and plotting routines; a choice will be made by those concerned of an appropriate map projection and scale. Some touch-up work by the Drafting Section will likely continue to be required.

2. Schedule for Annual Earthquake Catalogues 1974 and following

There is agreement among those concerned that the monthly lists of Canadian seismicity being prepared by Wetmiller represent an appropriate standard for the annual catalogues of Canadian earthquakes. There is also agreement among those concerned that monthly lists of current seismicity will be produced with approximately six months delay, and that achieving this has first priority on Wetmiller's time at present. Preliminary discussions have begun within the section of an alternative that will relieve Wetmiller of some of this responsibility, but no major changes can be anticipated until other individuals have completed their work on backlog catalogues. Schieman will continue to devote his available time to this project. At present, i.e. September, data reduction is in progress for January and February 1974 earthquakes. This represents a slip of about 2 months from the six month delay and was caused by summer vacations and field work commitments by Wetmiller and Schieman. It is expected that the delay will be reduced to about 6 months by the end of this year.

The following general procedures will be employed: Wetmiller will produce a monthly catalogue (or perhaps 2 or 3 months together) that he considers to be a final product, the monthly lists and appropriate seismograms will be sent to the West Coast office for perusal, and comments and suggested changes, particularly concerning western events, returned to Wetmiller for consideration. It is implied that the West Coast Section will have little direct responsibility for catalogues of current seismicity, although they will undoubtedly make special studies of certain events and some of these studies (e.g. isoseismal data) may be included in the current catalogue. It is understood that copies of western data on felt reports (and estimates of epicentres, where desired) will be sent to Ottawa promptly so that this information is available when the monthly catalogue is being prepared. (The role of the West Coast Section in determination of current seismicity will change after commissioning of the Western Telemetry Network in a way yet to be decided.)

When the current catalogue has been completed for 12 months of a calendar year, monthly lists will be combined to form an annual list, the maps plotted and the text prepared for the final manuscript. It is intended that for 1974 and following years the target dates for final manuscript will be the month of November in the year following the catalogue year.

3. Distribution of Preliminary Monthly Lists of Canadian Earthquakes to External Agencies.

Although this item was not originally listed for consideration by the catalogue review group, it is timely, has been discussed, and we present here our present views for your consideration.

There have been discussions in the past year or so among seismological institutions in the eastern United States concerning coordination and exchange of earthquake phase lists and preliminary epicenters. In addition, we have had informal contacts with institutions in northern New England

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concerning similar exchanges. This matter is expected to be discussed further at the Eastern Section SSA meeting in October at Harvard University which will be attended by both Wetmiller and Leblanc.

Our present intentions are to continue ad hoc exchanges of information when necessary with institutions like Lamont or Washington State, shortly after the occurrences of earthquakes near the border but of interest on both sides. In the near future more formal means of doing this may be developed if, for example, we wish to become involved with the eastern North American coordination. Somewhat separate is our distribution of the monthly lists of Canadian earthquakes as prepared by Wetmiller, which are also of interest to external agencies such as ISC, NEIS, as well as universities. We propose that, beginning with the monthly list for January 1974, copies of the Wetmiller list at about 6 months delay be sent to the ISC, NEIS and a small group of Canadian and American universities some of which will be decided by Leblanc and Wetmiller in their consultations at the Eastern Section meeting. These lists would be labelled as "preliminary" in the sense that they have not been checked by the Western office and that we might expect contributions from the American institutions for some events to the extent that an improved determination might appear in the annual catalogue.

This is as far as our discussions have gone to date, but we would like to have a plan for distribution by the time the January 1974 monthly list is ready.



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