

OF
MANILA
OBSERVATORY

PCS - VIII/MET- WP - 16

8th PACIFIC SCIENCE CONGRESS

- METEOROLOGY -

November 24, Tuesday 153

DISCUSSION: MICROSEISMOLOGY AS AN AID TO STORM DETECTION AND TRACKING.

The basis of discussion can well be made two letters from Dr. Merle Tuve, Director of Bureau of Terrestrial Magnetism, Washington, D C., to Fr. Deppermann, analysis of which letters follows:

There are serious objections to most microseismic directional work:

(1) It is generally assumed that waves come from one direction by one path or at most two. This assumption is not usually valid.

(2) It is forgotten that with microseismic recorders we register phase and not group velocity. This is only legitimate (i.e. to proceed as if we had group velocity) if only two waves are present, from same direction, one on surface and one slanting up from below.

(3) It is neglected that, if there are waves from many directions, with reflections, even 180° degrees, and refractions, apparent direction of arrival is function of amplitude of the several waves and their phases.

(4) The basic difficulty is that there is no starting point in this microseismic work. Matching therefore almost simultaneous humps from two or three stations is illegitimate.

As a matter of fact,

(1) On east U. S. Coast microseismic storms are actually complex, and the waves seem to come from several directions.

(2) Even if from one direction, there is ambiguity as to whether the micros are always initiated over the sea, or along the shore, or from both regions.

As a consequence,

(1) Bureau of Terrestrial Magnetism has given up their study of directions of microseisms.

(2) The Navy no longer believes in the Gilmore-Ramirez direction finding procedure.

Admission:

The question may be simpler and some results obtained on islands stations in the middle of the sea.

Hence, at least Japan and the Philippines may just come into this class, so let us proceed.