

VII. Inclination of the Hole Drilled by JARE-13

Inclination of the hole drilled by JARE-13 was measured at every 5 m down to 135 m by the author on December 5, 1972, shortly after the termination of drilling at 147.5 m below the snow surface. A one-shot type inclinometer made by Murata Mfg. Co. (Fig. 1a) fixed in a 2 m long brass pipe with guide rings (Fig. 1b) was lowered to a desired depth to record the inclination there. The clearance between the rings and the hole wall was about 2 mm so that the recorded inclination could be

Table 1. Inclination of the JARE-13 hole measured on December 5, 1972.

Depth (m)	Inclination (degree)	Direction from magnetic north* (degree)	Accumulated deviation (m)	
			x	y
5.0	0.9	47	0.071	0.057
10.0	1.2	34	0.158	0.119
15.0	1.3	29	0.235	0.173
20.0	1.5	47	0.342	0.268
25.0	1.8	56	0.430	0.398
30.0	2.2	48	0.558	0.541
35.0	2.2	66	0.636	0.716
40.0	2.4	65	0.724	0.906
45.0	2.5	55	0.849	1.085
50.0	2.6	53	0.986	1.266
55.0	3.0	42	1.180	1.441
60.0	3.3	32	1.424	1.594
65.0	3.9	24	1.735	1.732
70.0	4.0	24	2.054	1.874
75.0	4.0	22	2.377	2.004
80.0	4.2	17	2.727	2.111
85.0	4.0	20	3.055	2.230
90.0	4.2	28	3.378	2.402
95.0	4.0	23	3.699	2.538
100.0	4.0	23	4.018	2.679
105.0	1.7	31	4.151	2.755
110.0	2.8	16	4.367	2.811
115.0	2.1	0	4.559	2.811
120.0	2.0	0	4.734	2.811
125.0	1.6	330	4.855	2.751
130.0	1.7	310	4.950	2.673
135.0	1.7	292	5.006	2.499

* Direction of magnetic north is 49°50'W from true north.

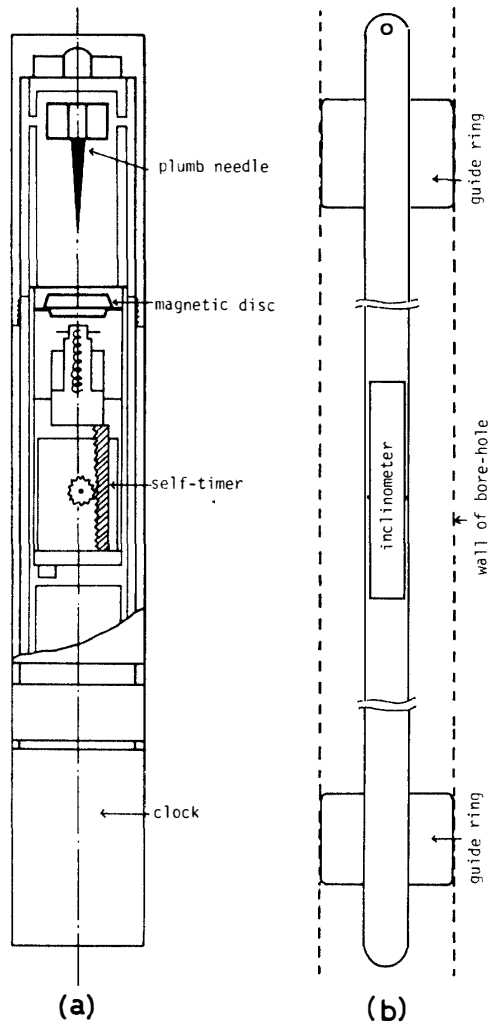


Fig. 1. Schematic diagrams of the inclinometer (a) and the guiding case (b).

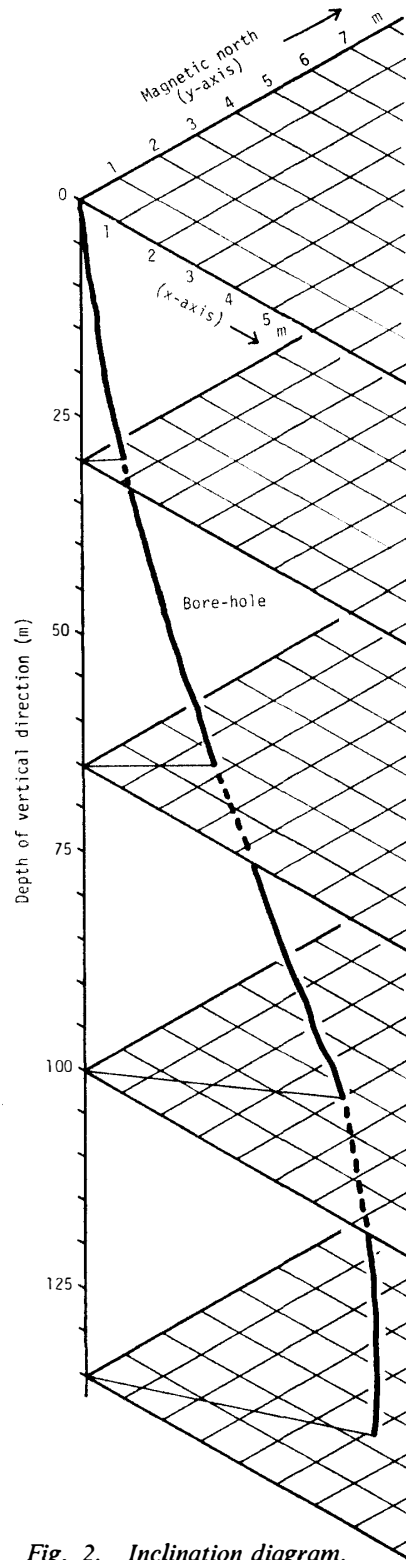


Fig. 2. Inclination diagram.

regarded as the inclination of the hole. The working principle of the inclinometer is such that, triggered by a clock-work, a piece of recording paper on a magnetic bearing disc is pushed up against a plumb needle.

The inclination was remeasured by Renji NARUSE on April 14, 1973 at several depths down to 100 m with the same inclinometer. Since no significant differences were noticed between the results of two measurements, only the results of the former measurement is tabulated below in Table 1 and diagrammatically shown in Fig. 2.

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