LIST OF DANISH GEODETICAL AND GEOPHYSICAL PUBLICATIONS 1966 – 1967

(Compiled by Dansk Geofysisk Forening).

NIELS ABRAHAMSEN: Arkæomagnetisme og jernalderslagge. Kuml, 1965, pp. 115–132.

A short review is given of magnetic concepts and their use in archaeomagnetic dating and finding. An example of application is given from a survey at Drengsted in Southwestern Jutland. The mean direction of the thermoremanent magnetization of 15 specimens from 5 oriented samples from the undisturbed slag pit MF with a C-14-age of 320± 100 A.D. was determined by an astatic magnetometer after stepwise cleaning in an a.c. magnetic field from 0 to 680 Oersted. The smallest deviation was found for a demagnetizing field of 170 Oe, which gave a mean of 19° east and + 70°.7 for the declination and inclination, respectively, the radius of the 80%-confidencecircle being 3°. A rude magnetic reduction to and comparison with the secular variation for London propose an age of either 0 to 150 A.D. or after 400 A.D.

NIELS ABRAHAMSEN: Some Paleomagnetic Investigations in the Faroe Islands. Meddelelser fra Dansk Geologisk Forening, vol. 17, hæfte 3, 1967.

Magnetic Zones of normal and reverse polarity measured in the field by means of a compass show the middle and upper lava series of the Tertiary Faroese basalts to be reversely magnetized, while in the lower lava series there are at least three magnetic zones of alternating polarity.
Cylindrical specimens of 43 samples were studied in the laboratory, 33 of which were found to be magnetically stable, giving a mean position of the paleomagnetic pole of 80° N and 159° E, with a 95% cone of confidence of 9°. The paleomagnetic pole of the middle and upper lava series agrees well with Tertiary poles from Eurasia and poles from the Tertiary igneous rocks of the British Isles, Iceland and Eastern Greenland, while the pole of the lower lava series differs slightly from other known directions of the same age, except the one from the Eocene of Eastern Greenland.

NIELS ABRAHAMSEN: Some Archaeomagnetic Investigations in Denmark; Prospezioni Archeologiche, vol. 2, 1967, pp. 95–97.

O. BEDSTED ANDERSEN: Surface-Ship Gravity Measurements in the Skagerrak 1965–1966. Geodætisk Institut, Meddelelse No. 42. Paper No. 3 of the Working Group on the Skagerrak Project. 1966. 54 p.

W. DANSGAARD, H. B. CLAUSEN and A. AARKROG: The Si^{32} fallout in Scandinavia, A New Method for Ice Dating, Tellus, vol. 18, 1966, p. 188.

W. DANSGAARD, H. B. CLAUSEN and A. AARKROG: Evidence for Bomb-Produced Silicon 32, Journal of Geophysical Research, vol. 71, 1966, p. 5474.

W. BLEEKER, W. DANSGAARD and W. N. LABLAND: Some Remarks on Simultaneous Measurements of Particulate Contaminants Including Radioactivity and Isotopic Composition of Precipitation, Tellus, vol. 18, 1966, p. 773.

W. DANSGAARD: Isotop-undersøgelser af gletschere, Fysisk Tidsskrift, vol. 65, 1967, p. 1.

A review on glaciological methods based upon the turnover of stable and radioactive isotopes.

Geodætisk Institut:
Bulletin of the seismological station Scoresbysund.
No. 44, Jul.–Dec. 1961.
No. 45, Jan.–Dec. 1962.
Nord: No. 12, Jul.–Dec. 1961.

Report on Seismology and Physics of the Earth Interior 1964–1967. By EINAR ANDERSEN: Submitted to the Fourteenth General Assembly of the International Union of Geodesy and Geophysics, held in Zurich, Switzerland. Compiled by JØRGEN HJELME.

H. HIRSCHLEBER, J. HJELME and M. SELLEVOLL: A Refraction Profile through the Northern Jutland. Geodætisk Institut. Meddelelse No. 41. Paper no. 1 of the Working Group on the Skagerrak Project. 1966. 35 p.

Four explosions in the Skagerrak in 1962 were recorded at seven places in Jutland and at four places in Norway and furthermore at the sea bottom in the Skagerrak. In 1964 the profile was reversed by shooting in the entrance of the Little Belt. This time more stations were recording.
A four layer model has been made. The top layer is the sediments. Only few observations refer to this layer. The thickness increases towards north. Below the sediments a velocity of 6.1 km/sec has been found. This "granitic layer" extends down to a depth of about 8 km, where a velocity of 6.6 km/sec is found. The Fourth layer is the Mantle with a velocity of 8.1 km/sec. The thickness of the Crust is 29 km.

H. HIRSCHLEBER, J. HJELME and M. SELLEVOLL: A Refraction Profile through the Northern Jutland. Papers presented at the Ninth Assembly of the European Seismological Commission. Copenhagen 1967, pp. 295–296.

This is an abstract of the previous paper.

E. HJORTENBERG: Bibliography of Microseisms 1955–1964. Geodætisk Instituts Skrifter, 3. Række, Vol. XXXVIII, 1967, 112 p.

Contains titles and abstracts of papers on microseisms and also bibliographic information of interest to people who wish to search for more recent references on microseisms.

E. HJORTENBERG: Annual Variation of Short-Period Microseisms. Papers Presented at the Ninth Assembly of the European Seismological Commission. Copenhagen 1967, p. 387–390.

The following conclusions are made concerning the microseisms in Scoresbysund: The annual variation of 1.0–1.4 second period is too small to be detected by the method used. The microseisms with periods 1.5–2.4 seconds tend to increase their amplitude somewhat during September–October as compared to the rest of the year. Microseisms with periods of 2.5–8 seconds have the wellknown annual variation with a maximum in November–December.

E. HJORTENBERG and D. D. YOUNG, Jr.: Survey of seismic noise on the Greenland Ice Cap. Research review. Office of Aerospace Research. Vol. 6, No. 7, 1967, pp. 19–24.

Contains a description of the field operations and scientific programs carried out at Inge Lehmann station during its operation 1966–1967.

E. HJORTENBERG: Project Blue Ice Activities at Inge Lehmann Station, Greenland, 1966–67. Polar Record, vol. 13, No. 87, 1967, pp. 780–783.

The seismic noise characteristics on the Greenland Ice sheet were investigated by the US Advanced Research Projects Agency in co-operation with the Danish Geodetic Institute. The station contained a seismic array with four bore-hole seismometers together with a three-component surface station. The station proved to be better than station Nord, previously the most efficient station in Greenland.
A magnetic observatory was operated by the Danish Meteorological Institute and measurements of cosmic-ray-produced Si^{32} were undertaken by W. Dansgaard. Daily synoptic weather observations were recorded.

H. JENSEN: Direction of Approach of Microseisms at some Northern Stations. Papers presented at the Ninth Assembly of the European Seismological Commission. Copenhagen 1967, pp. 371–372.

A sketch map is presented showing the smallest angle containing 50 per cent of the directions of approach of the 3–8 sec period microseisms at the seismic stations Godhavn, Ivigtut, Scoresbysund, Nord, Barentsburg, Copenhagen, Viborg and Murmansk.

H. JENSEN: Earthquakes, causes of, Int. Dictionary of Geophysics, Pergamon Press, 1967.

H. JENSEN: Seismic Waves, Attenuation of, Int. Dictionary of Geophysics, Pergamon Press, 1967.

NIELS JERLOV: Optical Oceanography Encyclopedia of Earth Sciences, Reinhold Publ. Corp., New York, 1966, pp. 619–623.

NIELS JERLOV: Aspect of Light Measurement in the Sea. Light as an Ecological Factor. Blackwell Scientific Publ. Oxford, 1966, pp. 91–98.

NIELS JERLOV: Optics of Sea Water. International Dictionary of Geophysics, vol. 2. Pergamon Press, 1967, pp. 1094–1104.

A. JESSEN: Der mittlere Meeresspiegel bei Esbjerg. Pure and Applied Geophysics. Vol. 62, 1965, pp. 137–141.

A diversity of diagrams shows the fluctuation of the mean sea level at Esbjerg. There is no sign of a definite long-periodical motion. The only indisputable result seems to be a steady rise of the sea level. The annual means are calculated from weighted monthly means; the weights are chosen thus as to moderate the effects of meteorological disturbances.

G. KULLENBERG: Transparency. Encyclopedia of Earth Sciences. Reinhold Publ. Corp., New York. 1966, pp. 927–929.

I. LEHMANN: On the structure of the Upper Mantle. Bull. Seism. Soc. Amer., vol. 56, Lamont Geolog. Obs. Contribution 955. 1966, pp. 1147–1152.

From apparent velocities of first arrivals across the Tonto Forest array for epicentral distance from 11° to 29° Niazi and Anderson derived a structure of the upper mantle deviating markedly from other structures as determined of late. It is found that on a different interpretation their data are in good accord with the Lehmann structure of the upper mantle.

I. LEHMANN: Low Velocity Layers. The Earth's Mantle, Ch. 3, Acad. Press Inc. London. 1967, pp. 41–61.

I. LEHMANN: On the Travel Times of P as Obtained from the Nuclear Explosions Bilby and Shoal. Phys. Earth Planet. Int. Vol. 1, L. G. O. Contrib. 1097. 1967, pp. 14–23.

The travel times of the explosions Bilby and Shoal were studied. Bilby which was fired on the Nevada test site was by far the stronger of the two and its observations could be combined with those of other shots fired on the Nevada test site. It was found that there were differences in the travel times to the ESE, E and NE of the site. There appeared to be a region of high velocity to the northeast. Some confirmation was obtained of the validity of the type of velocity distribution for the upper mantle considered by the author on previous occasions.

I. LEHMANN: Seismological Tables. Int. Dictionary of Geophysics. Pergamon Press, L. G. O. Contrib. 670. 1967.

I. LEHMANN: Core-Mantle Boundary. Int. Dictionary of Geophysics. Pergamon Press, L. G. O. Contrib. 824, 1967.

GUSTAF LIND: Gravity of the Lake Vättern Graben in Southern Sweden. Teknik och natur. Festskrift tilegnet professor Gunnar Beskow.

Different geological models of Vättern graben are presented. Their calculated gravity fields are compared with the measured one.
It is concluded that Vättern graben is situated between normal faults and with the greatest down-fault at the eastern side.

GUSTAF LIND and B. L. RAMACHANDRA: Magnetic Measurements over the Norite of Brattön and Älgön, Western Sweden. Teknik och natur. Festskrift tilegnet professor Gunnar Beskow.

A magnetic anomaly map is presented. Magnetic properties of samples from the area are given and a model for one of the islands is presented.

Meteorologisk Institut:
Magnetic Yearbook, Part 2: Greenland A, Godhavn 1962.

F. PRIMDAHL: Automatic Stepwise Suppression of the Zero of a Pen and Ink Recorder. Meteorologisk Institut, Geophysical Papers, Report No 1, October 1967.

SVEND SAXOV: A Gravity Meter Calibration Survey along the Northern Part of the European Calibration Line, Buddinge – Oslo. Bollettino di Geofisica Teorica ed Applicata, Vol. VIII, No. 29, 1966, pp. 77–80.

Worden gravimeter No. 142 has been calibrated employing the gravimetric calibration line between pendulum stations in Buddinge, Denmark, and Oslo, Norway. The most recent gravimetric differences are summarized.

SVEND SAXOV: Co-operation in Geophysical Progress. Presidential Address at the Twenty-Eigth Meeting of the European Association of Exploration Geophysicists, held in Amsterdam, 15th–17th June, 1966. Geophysical Propecting, Vol. XIV, No. 3, 1966, pp. 233–241.

SVEND SAXOV and NIELS ABRAHAMSEN: Some Geophysical Investigations in the Faroe Islands. Zeitschrift für Geophysik, Jahrgang 32, 1966, Sonderheft, pp. 455–471.

The geology is reviewed, the dominating rocks beeing flood basalts in a sequence of nearly 3,000 meters. The lavas fall into three main series. The basalts are gently folded, forming an anticline to the north and a syncline to the south, the strata dipping 1 to 4 degrees to the east.

Density determinations give 2.90, 2.82 and 2.87 gr/cm³ for the lower, middle, and upper series, respectively.

Bouguer-anomaly maps from a 1954 survey including 25 stations and from a 1964 survey including 270 stations are presented. The gravimetric picture reveals a pronounced minimum to the north and indicates a maximum to the south. From the gravimeter gradient a tilting of the strata to the east is suggested.

Magnetic polarization along the principal geological profiles are normal in the bottom and the top of the lower series, while the middle part of these series as well as the middle and the upper series are reversely polarized.

Seismic refraction measurements reveal travel times of 3.9, 4.9, and 6.4 km/sec. for the two uppermost series, the lower series, and an unknown deeper layer, respectively. It is concluded from an inspection of seismic and seismological investigations in the North Atlantic region that the 6.4 km/sec. layer in the Faroes is of basaltic character.

SVEND SAXOV: Establishment of a Gravimetric Basic System and Gravity Meter Scale Constants in Bohuslän: Teknik och natur. Festskrift tilegnet professor Gunnar Beskow. 1967.

In the summer of 1966 a gravimetric base net has been established in northern Bohuslän. The stations, nine in all, are chosen close at benchmarks at churches and the net has been incorporated in the European Gravity Calibration Line being tied to two of its stations, Tanum K and Svinesund II. The observations were carried out by means of Worden gravimeters 142 and M. 779 and an analysis of the results obtained indicates a change in the W. M. 779 scale constant of 0.02 per cent.

SVEND SAXOV and R. SPELLAUGE: Gravity Ties – The Faroes – Iceland. Bollettino di Geofisica Teorica ed Applicata, Vol. IX, N. 33.

In the summer of 1965 a fast-boat gravimetric survey was carried out between Denmark (*Buddinge G*), the Faroe Islands (*Torshavn, Klaksvig, and Tveraa*), and Iceland (*Reykjavik*). LaCoste and Romberg gravimeters Nos. 54, 79, and 85 were employed. The gravimetric readings indicated changes in the scale constants. Readings prior to and after the boat-trip are investigated and a special calibration survey along the German gravimeter calibration base was carried out. Concluding from these measurements we obtain a German, an Italian grav., and an Italian pend. standard.

The readings in the Faroic and Icelandic stations are reduced to the three standards and a summary is made of gravimetric values for each station including the Icelandic calibration basis.

It is concluded that for the Faroic stations the LCR Italian standard values agree better with previous values than do the German standard values. As far as the Icelandic stations are concerned it is concluded that the LCR German and Italian standard values are more correct than previous values, even if the German and Italian standard differ 0.20 mgal per station.

NIELS SCHRØDER: Gravimetric effect of a normal fault computed by a GIER-ALGOL program. Geoexploration, Vol. 3, no. 3, 1965, pp. 155–160.

A program in GIER-ALGOL III for calculating the gravimetric effect of the normal fault is presented.

Input procedure is described and an example of application is given.

NIELS SCHRØDER and H. HENKEL: Possibilities and Limitations of Geoelectrical Soundings Applied for Bedrock Analysis. Teknik och natur. Festskrift tillegnet professor Gunnar Beskow. 1967.

On basis of electrical soundings carried out in July, 1966, in southern Sweden the usage of such measurements in the occurring geological environments is debated. It can be concluded that, in general, the method is practicable. In cases where extreme resistivity contrasts occur difficulties in connection with the principles of suppression and equivalence become accentuated and render difficulties in interpretation.

O. SIMONSEN: Global Aspect of the Astronomical Correction for Levelling of High Precision When Considering the Definition of Levelling Datum. Reproduced by the Danish Geodetic Institute, Copenhagen 1965, viii + 233 p., including a one page abstract.

O. SIMONSEN: Report for Period Sept. 1963–July 1967 on R.E.U.N. – Réseau Européen Unifié de Nivellement. Submitted to the XIV General Assembly of the International Union of Geodesy and Geophysics held in Switzerland Sept.–Oct. 1967. Reproduced by the Danish Geodetic Institute, Copenhagen Denmark, 1967, 121 p.

Report is given on the activities of the Permanent Commission No. 2 concerning
1. Possibility for an increase of the R.E.U.N. with detailed information for each of the participating countries Finland, Norway, Sweden, Denmark, Germany, the Netherlands, Belgium, France, Great Britain, Spain, Portugal, Italy, Switzerland, Austria.
2. Collaboration with the Permanent Service for Mean Sea Level and with Special Study Group No 22 with special allowance for attachment of tide gauge stations to the R.E.U.N.
Special attention is called to various definitions of the zero level or Datum, Normaal Amsterdam Peil = N.A.P., namely depending on which levelling network has been used for the definition of N.A.P.

JENS SMED: Monthly Anomalies of the Surface Temperature in Areas of the Northern North Atlantic in 1963. – Do. in 1964. – Monthly Anomalies of the Surface Temperature in the Area off the Eastern Coast of Scotland in 1963. – Do. in 1964. Annales Biologiques, Vol. 21. Copenhague, 1966, p. 14–16 and pp. 25–26.

For the region as a whole there is in 1963 only a slight predominance of positive anomalies (the period 1876–1915 being taken as standard). From 1963 to 1964 there is however, a rise of temperature amounting to 0.5°.

JENS SMED: Monthly Anomalies of the Surface Temperature in Areas of the Northern North Atlantic in 1965. – Monthly Anomalies of the Surface Temperature in an area off the Eastern Coast of Scotland in 1965. – Annales Biologiques, Vol. 22. Copenhague, 1967, pp. 14–15 and p. 24.

For the region seen as a whole the temperature is the same as in 1964. There has been an increase in the central part of the region, a decrease in north-eastern and south-western marginal areas.

JENS SMED: Monthly Anomalies of the Surface Salinity in an Area of the Southern North Sea during the Years 1959–1963. – Annales Biologique, Vol. 22, pp. 25–26, Copenhague, 1967. Earlier published series of anomalies (cf. the lists for 1951 and 1964) have been carried up to 1963.

ERICH GOEDECKE, JENS SMED und GERHARD TOMCZAK: Monateskarten des Saltzgehalte der Nordsee dargestellt für verschiedene Tiefenhorizonte. – Ergänzungsheft zur Deutschen Hydrographischen Zeitschrift, Reihe B (4°), Nr. 9. 13 pp. + 96 charts. Hamburg 1967.

The salinity distribution in the North Sea is represented by means of monthly charts for the depths 7.5, 20, 30, 40, 60, 80, and 100m and for the bottom. The charts are based upon mean values for 1° squares or ½° squares, derived from observations made during the period 1902–1954.