The following papers, presented during the 6th OSTIV Congress have been published in "Beiträge zur Physik der Atmosphäre" (OSTIV-Heft), 1957. Herausgegeben von W. Georgii, H. Koschmieder. Akademische Verlagsgesellschaft mbH, Frankfurt am Main.

Die mechanische Windfahne,
eine theoretische und experimentelle Untersuchung

von H. P. Barthelt und G. H. Ruppersberg
Mit 18 Abbildungen im Text

Abstract. The paper deals with the behavior for a single-axial wind vane of general construction. The statical behavior of the wind vane is described by a simple expression for the directional moment. The sensitivity of response and accuracy of setting result from it as parameters of practical importance. The dynamical behavior is mainly described be the socalled quality of system, a system constant which essentially is given by the type of the wings. Thus hints are obtained for the construction of systems with high resolving power with respect to time, and it is possible to make statements concerning the limits of the resolving power which can be attained with weather-resistant mechanical wind vanes. The results of measurements in the wind tunnel fit in well with the theory. Deviations are only observed when the wind vane is self-excited. A general criterion for self-excitation cannot be given, but it can be shown how (for a certain type of system) the self-excitation can be avoided without diminishing the quality of system.

Wolken-Reihenbilder II
Zum Lebenslauf von Quellwolken

von H. Koschmieder und H.-G. Neumann. Mit 25 Abbildungen

Abstract. Cloud sequence pictures, published first in 1942, show pictures of a given cloud at equidistant times from one and the same place. In the present paper we are concerned with pictures made with *one* camera. Often a scale can be applied to the pictures with the aid of the cumulus-condensation-level. Then, the pictures can be evaluated. Fourteen series of cumulus clouds (mostly life cycles) ar shown. They show: The build-up of a dwarf-cumulus takes about equally long (roughly 10 minutes) as of a large tower. This suggests that small clouds are connected with small upward velocities, large clouds with large upward velocities. The stationary boundary persists one to two minutes in the most favorable case. The decay depends clearly on the ratio with to vertical extent. For small values of this ratio the decay lasts about seven minutes, for large ratios about twice as long.

Wolken-Reihenbilder III
Wolkenwalzen

von H. Koschmieder und H. Schulz
Mit 12 Abbildungen im Text

Abstract. An example is given of cloud rolls which are parallel to each other and which have approximately circular cross section. The height has to be determined from meteorological parameters. The further evaluation is made by photogrammetric methods, resulting in values for diameter, length, distance of cloud rolls, and depth of the cloud area. The cloud rolls move with the wind speed prevailing in their layer.

Über die Bénard-Strömung in Aerosolen
Ein experimenteller Beitrag
zum Modell der zellularen Konvektion

von H. V. Tippelskirch. Mit 9 Abbildungen

Abstract. The following investigations were undertaken in the Institute for Aviation Meteorology of the Deutsche Forschungsanstalt für Segelflug in Munich-Riem (Director Prof. H. Koschmieder). They deal with the Bénard flow in aerosols of liquids and solids. It is demonstrated that the liquid aerosol can form G and F-cells and transitional forms. The appearance of each kind of cell is dependent on the concentration of the dispersed component of the aerosol and on the temperature at the boundaries of the convection layer.

In contrast to the liquid aerosol the solid aerosol forms G-cells only. The different behavior of the aerosols is due to their different compositions.

In a brief consideration of the cloudiness two basic forms of convective cloudiness are found which can be explained on the basis of the experimental results.

The conclusions based on the experimental results concerning the cloudiness will have to be confirmed by experimental studies of the clouds themselves.

Seiten 4129 bis 4132 "not easily"