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A COMMEMORATION OF GYÖRGY PÉCZELY LATE CHAIRHOLDER PROFESSOR OF THE DEPARTMENT OF CLIMATOLOGY, JÓZSEF ATTILA UNIVERSITY AT THE 80TH JUBILEE OF HIS BIRTH AND THE 25TH JUBILEE OF HIS DEATH

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Summary – The staff of the Department of Climatology and Landscape Ecology, University of Szeged, teachers and researchers, among them his pupils, greet Professor György Péczely with this commemoration on the jubilee of his birth and death. Professor György Péczely was born in Budapest. In his childhood he lived in Hódmezővásárhely, studied in Szeged at the József Attila University, and then worked in Budapest at the Hungarian Meteorological Institute. In the last part of his life he returned to Szeged and worked as the leader of the Department of Climatology, József Attila University. Professor György Péczely was a prominent representative of statistical climatology in Hungary. His former staff and the new generation will keep his remembrance and will continue his activity.

Key words: biography, Department of Climatology, educational research and popular science activity, importance of life-work, total publication list

1. BIOGRAPHY


Professor György Péczely (1974)

György Péczely was born on 5 May 1929 in Budapest. He attended elementary and secondary school in Hódmezővásárhely but later continued his studies at the Faculty of Arts of the present Eötvös Lóránd University in Budapest and the Faculty of Sciences at the University of Szeged. He finished his studies in 1953 and acquired a teacher's diploma in biology and geography. He was immediately invited to the Institute of Geography where he became assistant professor at the Department of Climatology, which had been established in 1952 with the lead of Dr. Richard Wagner. In March 1953 he moved on to the National Meteorological Institute where he made his career; at first he worked at the Department of Long-term Forecast until 1957 then he became a research associate at the Climatology Department where he led the Synoptic Climatology research group. From 1964 he worked as Head of the Department of Hydrometeorology and in 1969 he became Head of the Department of Data

Processing and Information. In 1970 he became Deputy Head of the Marczell György Aerological Observatory while in 1971 he was promoted to Deputy Head of the Central Meteorological Institute. On 15 March 1973, after the decease of Dr. Richard Wagner, he was nominated Head of the Department of Climatology at József Attila University in Szeged (today's University of Szeged). He worked at this department until his death on 1st March 1984.

He defended his doctoral thesis at the Eötvös Lóránt University with a 'summa cum laude' degree, taking his exams in meteorology as the main subject along with probability calculations and hydro-geography. In 1961 he started postgraduate studies and acquired the title 'candidate of geographical sciences (climatology)' with a dissertation titled 'A synoptic-genetic analysis of Hungary's climate'. He defended his academic dissertation in 1974 and became a 'Doctor of Geography (Meteorology)'. The title of this dissertation was 'The regional system of surface inflows in the upper and middle catchments of the Danube'.

Looking at the life of György Péczely a very successful administrative and scientific career unfolds. In the course of his work he had to struggle with many difficulties both from the administrative and the scientific sides but he never complained. He was a reserved, very talented man who usually kept his own company and had a well-designed work schedule. He always walked his own path. He had a thorough, extensive knowledge of the scientific literature; he read in English, German and Russian languages. His love for his chosen profession, his sense of vocation, his fabulous working capacity and his research results raised him to the highest positions.

His first article was published in 'Időjárás' (Weather) with the title 'The effect of trade winds on the precipitation of Hungary' when he was 22 years old. In the course of years he became a more and more enthusiastic researcher and an accomplished academic writer. He published almost 150 articles and 5 books. His main research topics were the climates of the Earth, Europe and Hungary within. He was a unique, and maybe the last representative of applied, synoptic and classic climatology in Hungary.

His last scientific issue, 'The catalogue of the macrosynoptic situations in Hungary (1881-1983)' was published two weeks before his decease whereas his last textbook, 'The climate of the Earth' was only published posthumously.

His scientific popularising activity also needs to be emphasised. György Péczely wrote numerous interesting articles for the public, which were published in different newspapers and magazines such as Élet és Tudomány ('Life and Science') and Népszabadság.

He died on 1 March 1984 in the 55th year of his life, of cardiac infarction. His early death came unexpected and deeply shocked everybody who knew him. His decease was a huge loss for Hungarian science.

2. EDUCATIONAL ACTIVITY

7 academic lecture notes formed the basis of his educational activity (L) (Czelnai and Péczely 1956L, Péczely 1973L, 1974aL, 1974bL, 1976L, 1977aL, 1977bL), as well as two textbooks (T) (Péczely 1979T, 1984T), which became indispensable means of modern education in all Hungarian universities where climatology was taught.

3. SCIENTIFIC ACTIVITY

3.1. Macrosynoptic situations of Hungary

His most important field of study was related to the macrosynoptic situations of Hungary concerning

- their *description* based on the work of Baur (1948) as well as Hess and Brezowsky (1952). The number of types he distinguished changed a lot over time; in 1955 he only established 10 characteristic macrosynoptic types for the area of Hungary (Péczely 1955a), later he distinguished 15 types (Péczely 1956a) but in general climatic characterisations he sometimes also used 12 (Péczely 1959a). In the final version there were 13 types (Péczely 1957a).
- their *catalogue* (Péczely 1957a) [catalogue: 1877. 01. 01. – 1956. 12. 31.], containing some tables of the characteristics of some situations. A later version of the catalogue also includes information on the characteristics and relations of the different macrosynoptic situations in a tabular form as well as a comparative analysis of the classification of Ambrózy, Bartholy and Gulyás (1943-1980) (Ambrózy et al. 1983) based on cluster-analysis and his own.
- *general climatologic description*. He presented the special weather conditions and the characteristic behaviour of the related climate elements for each macrosynaptic situation; his research shed light on the structure of climatological phenomena and served as a scientific basis for weather forecast (Antal and Péczely 1956, Péczely 1956a, 1957b, 1959a, 1961a). He has already started to examine the relationship between air pollution and the macrosynoptic situations on the basis of data from Budapest (Péczely 1959b).
- revealing their *connection with other climatological phenomena and processes*. His most important articles, widely cited even these days, were published in this topic.

3.2. Applications of mathematical statistics

Although there had been earlier publication applying mathematical statistical solutions in the field of climatology (Herden 1878, Jordan 1949, Steiner 1926, 1931), György Péczely can be considered the first climatologist who extensively used these methods in his work.

He made classifications based not only on air pressure but also included other climate elements. In one of his studies he examined the monthly occurrence probabilities of 36 combinations of temperature, cloud cover, precipitation and wind speed data from Budapest. As a result he stated that 34 combinations of these variables can be considered real weather types (Péczely 1957c).

In many of his studies he was looking for regularities in the secular time series of air pressure, temperature and precipitation. He used the method of harmonic analysis, which is a practical application of the Fourier series. German scientists have extensively studied harmonic analysis and its possible uses in the 1930's (e.g. Stumpff 1937). The statistical reality of the component waves in the series was defined based on the Schuster-criteria. According to this those waves can be considered realistic of which the amplitude is at least 3 times the expectance (Péczely 1951, 1952a, 1952b, 1952c, 1953a, Péczely and Csomor 1973, Péczely and Makra 1980). However Hamed et al. (1986, 1987) showed that this approach, used by all the previous authors publishing in this topic (Herden 1878, Jordan 1949, Steiner 1926, 1931), was wrong. Hamed et al. (1986, 1987) introduced a new method to define the statistical reality of the component waves. Professor Péczely examined the normality of longer climatological time series and showed that the degree of normality can be used to describe the macrosynoptic characteristics of any given meteorological station (Péczely 1954a). He has defined the climatological probabilities of different meteorological elements (Péczely 1956b, 1984a) and their probability distributions (Péczely 1965a). Besides he also worked on dissecting mixed distributions to components with normal distribution since these sub-populations are much easier to interpret physically than the not representative mean of a mixed distribution (Péczely 1956c, 1956d). He modelled the mean monthly temperature values of the Carpathian-basin with the help of the following formula: a $t = A\varphi + B\lambda + Cz + D$ expressing the monthly mean temperatures (t) as a function of the geographical latitude (φ), longitude (λ) and the height above sea level (z). He defined the constants of the equation with correlations from the monthly mean temperature data of 68 meteorological stations. Of the constants of the equations it was possible to define the horizontal temperature gradient (γ) and its direction (α), which points towards the decreasing of the temperature. These values made it possible to analyse the weight of continental and oceanic effects in the geographical distribution of temperature. Based on this formula, the mean temperature amplitude could be analytically defined, which expresses the continentality of temperature (Péczely 1970, 1979T).

3.3. Prognostic studies

György Péczely studied the duration and frequency of temperature anomalies of the same sign for periods of different length (daily, monthly and seasonal) with prognostic objectives. Based on this information it is possible to define the probability of the continuous occurrence of a positive or negative anomaly, within 1,2,3,… n time units in different regions (Péczely 1957d). He also analysed the issue of predicting temperature fluctuations within the winter season (Péczely 1957e) as well as the space-time functions of the standard precipitation maxima (Péczely 1974a). He worked out indirect methods for defining the precipitation amounts of several-day periods (Péczely 1964a), for defining the standard precipitation maxima (Péczely 1967a) of catchments (Péczely 1966a) and for defining monthly and yearly precipitation amounts of different probabilities (Péczely 1971a). He defined the subsistence probabilities of the temperature anomalies of subsequent months for the North-Atlantic and European region, which has a prognostic significance (Péczely 1977).

He also worked on delineating microclimate regions based on temperature and precipitation data (Péczely 1963a). He defined 12 climatic regions for the area of Hungary based on the one hand on the mean temperature of the summer half-year or the vegetation period, on the other hand the mean yearly precipitation amount (Péczely 1979T). He also studied the singularities of the daily fluctuations of temperature (Péczely 1958a) and the susceptibility for aridification (Péczely 1958b).

3.4. Research on meteorological elements

3.4.1. Temperature

He analysed the temperature rhythms of the extreme seasons (Péczely 1952b, Péczely and Makra 1980) and the longer periods apparent in the prevailing weather types of winter and summer (Péczely 1953b). He defined weather types based on the simultaneously occurring anomalies of air pressure and precipitation. He established that of the 4 types resulting from the combinations of the positive and negative anomalies 3 can be associated with the 3 major action centres defining our climate in winter while in summer 2 (Péczely 1953b). He studied the effect of solar activity in the warming of the stratosphere (Péczely 1956e) and the forming of anticyclones in association with the solar activity (Péczely 1954b, 1954c). He found a relationship between the formation of polar anticyclones and the material radiation of the sun. In time of magnetic turbulences, caused by the inflow of particles, the temperature 9-12 km above the North Magnetic Pole starts to increase. This wave of heat spreads from the magnetic pole in the form of concentric rings. At the same time the pressure appears at the surface level, which may induce an outbreak of the cold air accumulated in the polar basin (Péczely 1954c). He also pointed out the role of polar anticyclones in the regeneration of the anticyclone of the Azores and through this in building the Scandinavian anticyclone. The results he got through the clarification of the process and its phases he used for making predictions several days ahead (Péczely 1954b). He examined the common frequency distributions of the daily means of temperature and cloud cover from month to month using the data of Budapest. Based on these parameters he defined 10 types, demonstrated their relationship with the prevalent macrosynoptic situation but also stated that these cannot be regarded as synoptically homogenous (Péczely 1955b).

In his articles he deals with local (Hungarian) single events (e.g. an unusual morning darkness in Budapest; Péczely 1959c), local phenomena (e.g. föhn wind on a given day; Péczely 1962a), meteorological topicalities (e.g. the extremely cold February in 1956; Péczely 1956b), extreme daily temperature fluctuations within a given period (Péczely 1973), time series analysis (e.g. the secular course of daily mean temperatures under -10°C; Péczely 1956f), studying the statistical structure of data series (Péczely 1974b, 1975, 1976a), measuring a given climatological parameter (e.g. the rate of evaporation in a vat; Péczely 1965b), the effect of orography on air currents (e.g. the protecting effect of the Carpathians in the case of a cold air intrusion; Péczely 1960a) an exchange of air between the Hungarian Plains and the surrounding mountains (Péczely 1963b), climatography (Péczely 1969a), regional (e.g. blocking situation on the southern hemisphere; Péczely 1956g) and global climatic phenomena (e.g. Péczely 1953c, 1955c) but he wrote about the use of SI units in meteorology as well (Péczely 1979a). He showed that along with the warming of the northern polar region Siberia cooled down, as well as the southern polar region (Péczely 1953c). He noted a global warming tendency on the Earth from 1920 and thought the reason was an increase in the amount of vapour in the atmosphere. He thought the latter was connected to small fluctuations of the solar constant (Péczely 1955c).

3.4.2. Precipitation

In his first article, published in Időjárás when he was 22 years old, he studied the effect of the trade winds on the weather of Hungary (Péczely 1951). The areas with winter rains and summer droughts he named the belt of 'pure passat effect' (e.g. the Mediterranean region) while the regions with double rainy seasons and summer droughts were given the name of 'disturbed passat effect' regions. He considered Hungary to belong to the latter group due to the decrease of precipitation in August and the secondary maximum in October and November. He also dealt with the fluctuation of precipitation in Hungary (Péczely 1951, 1952a), and classified meteorological stations according to the wave parameters of the analysed data series. He established five classes: (1) tropical, (2) polar, (3) oceanic, (4) continental, (5) mixed. By analysing the interrelations of yearly precipitation sums in European stations he deduced that the regions having positive and negative correlations are organised in zones, namely he showed the migration of precipitation waves across Europe (Péczely 1952c, 1953a). He studied the periodicity of Hungary's summer precipitation (Péczely and Csomor 1973) as well as the surface inflow on the middle and upper part of the Danube's catchment (Péczely 1971b).

In order to describe the strength of the effect of the Mediterranean climate he introduced a number (M), which is the mean difference between the yearly mean temperature and precipitation sum of a given year and a. Thus M equals the product of the mean absolute differences of these two parameters. This M number is inversely proportional with the strength of the Mediterranean climate effect and in the case of the standard Mediterranean series its value is 0. Using Budapest's monthly temperature and precipitation data he defined the secular course of the Mediterranean climate effect and the longer periods within it (Péczely 1954d). In order to trace the Mediterranean characteristic in Hungary's climate he took the proportion of monthly precipitation compared to the yearly precipitation sums for each station and the mean proportions of the 30-year standard monthly values compared to the yearly precipitation sums in some typical Mediterranean stations. The index of the Mediterranean character is provided by the pairwise mean absolute differences of the monthly percentage values (M). The smaller this value, the stronger the Mediterranean character is in the given place's yearly course of precipitation. If M=0, the match is perfect (Péczely 1957f). Based on the yearly course of precipitation he stated that approximately one-fourth of Hungary's area has a sub-Mediterranean character, while the rest is continental (Péczely 1960b). He also analysed the intensity of precipitation for Hungary's area (Péczely 1967b), its spatial distribution (Péczely 1964b), and the frequency and spatial distribution of precipitation maxima occurring in short time periods (Péczely 1962b, 1972).

3.4.3. Snow cover parameters

He defined the characteristics of snow cover for Hungary's area. He noted that the highest amount of snow falls in our mountain regions and in SW-Hungary (50-55% of the whole yearly precipitation) while the lowest in the lowlands (22-25% of the whole yearly precipitation). On the basis of correlations between the monthly amount of snow and the monthly mean temperature he distinguished four regions in Hungary: (1) cold - snowy, (2) cold - less snowy, (3) mild - snowy, (4) mild - less snowy. The spatial distribution of these regions shows very expressively the maritime and continental climate effects during the winter (Péczely 1964c).

One of his most important works, his thesis titled 'The frequency of snow in Hungary' was released as one of the Smaller Publications of the Hungarian Meteorological Service (Péczely 1966b). In this he presented the main mathematical and statistical parameters of four climatic characteristics of the snow cover (number of days with snow cover, the maximum snow depth occurring in winter, snow thickness, the first and last days with snow cover). He determined the frequency distribution of these characteristics, and revealed those relationships, which allow obtaining the frequency values with the help of simple parameters. The frequency values of the climatic characteristics of snow are particularly important because their distribution is highly asymmetric. Therefore the means in themselves are often misleading and insufficient to describe the distribution. This applies particularly to the thickness of snow and the extreme dates, where the knowledge of the means in itself is not enough even for a simple characterisation serving the purpose of climatic comparison.

He studied the role of melting in the water balance in Hungary. He showed that there was a statistical relationship between the average monthly volume of melted snow, the mean maximum monthly snow depth, and the monthly mean temperature. In addition, he found a relationship between the average precipitation, the average number of days with snow cover and the monthly average of precipitation (Péczely 1968).

He presented the geographical distribution of the mean maximum snow depth of many years for the territory of Hungary (Péczely 1966c) and for the Danube catchment down to the mouths of the river Tisza (Péczely 1969b). He highlighted the relationships between altitude, precipitation and the maximum snow depth. He defined the average maximum snow depth for Hungary. He presented the spatial distribution of the maximum duration of snow cover and the maximum snow depth as well as the predicted maximum snow stress (Péczely 1966c). He analysed in detail the temporal variability of maximum snow depth and derived empirical distribution functions based on which the standard probability values (10, 25, 50, 75, 90%-) (i.e. quintiles) of the maximum snow depth can be calculated as the function of the mean maximum snow depth. Based on snow water content measurements carried out in different sampling points of the area he derived a relationship between the mean snow volume weight characterising the maximum snow depth and altitude (Péczely 1969).

A basic knowledge of the precipitation trends is fundamental when studying the hydrology and water balance of catchment areas or when trying to assess the changes of water resources over time. For this purpose the best available and most commonly used climate data are the average monthly, seasonal and annual precipitation, which provide information on the normal amount of water intake of an area and its rhythm within the year. The use of these data means we assume that they describe the average amount of water involved in the hydrological cycle. However, in our climate the water intake of the surface is quite different from that indicated by the average monthly precipitation due to the snow accumulation in winter and the spring thaw. In order for an expert to deduce the real surface water amount appearing in a given month from the available precipitation averages it is necessary to define the water intake, which is partly the precipitation falling to the surface in liquid form, and partly the water from the melting of accumulated solid precipitation. During periods when there is no snow cover, the water intake equals the precipitation of atmospheric origin. In times of snow accumulation when much of the precipitation amount is stored in the snow cover the surface water intake is significantly lower while after the melting of the snow it is significantly higher than the amount of precipitation. György Péczely worked out a method to define monthly averages of water intake for the Tisza river catchment (Péczely 1969c). For the catchment of the Danube down to the mouth of the river Tisza as well as for the catchments of the major tributaries he presented the monthly regional averages of the surface water intake and the water amount originating from snow melt, which should be considered in calculations (Péczely 1969). He also examined the cooling trends on clear, windless and overcast nights, on days with snow cover or without. He stated that in Hungary in the middle of winter (January-February) on clear days with a snow cover the temperature decreases on average by 9°C at night while in cloudy conditions by 5-6°C. He also established that the values of minimum temperature closely follow the distribution of the snow layer (Péczely 1957g). He also specified the frequencies of the co-occurrence of the agriculturally important $t_{min} \leq -10°C$ and a snow depth of less than 5 cm (Péczely 1966).

3.5. Research on Lake Balaton

Several of his studies have addressed the climate of Lake Balaton. He described the local wind system of Lake Balaton (Péczely 1961b, 1962c), the lake's effect on moisture and temperature tendencies (Péczely 1957h) as well as on the cloud cover (Péczely 1974c); he studied the solar radiation of the Lake Balaton area (Péczely and Takacs 1974), the temperature (Péczely 1974d), the wind climate of the near-surface atmosphere (Péczely 1974e), the local wind system in the near-surface atmosphere (Péczely 1974f), the local circulation in the area of Siófok (Péczely 1974g), humidity (Péczely 1974h), the distribution of precipitation (Péczely 1974i), the snow conditions (Péczely 1974j), the ice conditions (Péczely 1974k), the microclimate of an area near Lake Balaton (Péczely 1974l), as well as the frequency of favourable and unfavourable weather conditions in the bathing season (Péczely 1974m). He also analysed the temperature trends of the Külső-lake in Tihany (Péczely 1959d). The book itself ['The climate of Lake Balaton' (eds Bell, B. and Weaver L.), Official Publications the National Meteorological Service 40] is such a basic piece as the 32-volumed monograph 'The results of the scientific analysis of the Lake Balaton' edited by Lajos Lóczy, which was published in the first few years of the 20th century both in Hungarian and German languages. Professor Péczely wrote 40% of the articles in this monograph.

3.6. Scientific results of the later stages of his life

At a later stage of his work György Péczely studied the global climate system of climate elements. In one of his studies he correlated the monthly barometric anomalies of four atmospheric pressure action centres (the North Atlantic subtropical anticyclone, the South Atlantic subtropical anticyclone, the Central Asian winter thermal anticyclone and the South-West Asian summer thermal depression) with the monthly baric anomalies of Earth's other areas. The correlation matrices of the subtropical anticyclones show a basically zonal structure. A common characteristic of the North Atlantic and the South Atlantic action centres is that their air pressure is strongly negatively correlated with the air pressure conditions of the subpolar region (Péczely 1979b). He noted that during the summer in both hemispheres the subtropical anticyclones move in a polar direction whereas in winter towards the Equator. The nature and extent of the displacement can be associated with the yearly course of the tropospheric temperature contrast between the equatorial and polar areas. The annual course of the air pressure conditions of the two anticyclones is opposite in the two hemispheres according to the thermal seasons; the maxima appear in summer in the northern hemisphere and in winter in the southern hemisphere. The main reason for that is the annual air mass exchange of the extensive continents of the northern hemisphere, regulated by thermal factors.

However, besides these factors, the yearly air mass exchange of the polar regions also have an impact on the situation and the pressure of the subtropical anticyclones, particularly in the southern hemisphere (Péczely 1981). He studied the temporal variability of the mean monthly air pressure of the Earth. He established the relationship between standard deviation and latitude, mapped the dates of the maximum and minimum standard deviations and gave the distribution of the standard deviation for two months (Péczely 1980a). In another paper he determined the weight of the air mass located above Asia in January and July, also based on the atmospheric pressure at sea level. Since in this area the atmospheric pressure is characterised by winter (January) maxima and summer (July) minima, the difference between the weights of the air masses in these two months can be used to characterise the annual air mass exchange of the continent. Based on the mean fluctuation of the atmospheric air pressure at sea level we would get a value nearly 3 times more than that of the real value. By studying the geographical distribution of the actual amount of annual air mass exchange he established that its value is the highest in South-West Asia and Western Siberia, while in the Tibetan Highland it has an opposite sign. These areas give off air from January to July, while the latter takes up air (Péczely 1980b). He also studied the monthly temperature anomalies in the North Atlantic - European Region (Péczely 1976b) as well as the monthly and annual mean temperatures and their variability on Earth (1974n). In the latter paper he analysed the global system of standard deviations of the January, July and annual mean temperatures. He stated that the variability of mean temperatures is largest in the subpolar regions. Above the land the standard deviation is 20-50% higher than above the oceans. The greatest variability is related to the climatic fronts in the Arctic and the Antarctic. Furthermore he showed that in areas of high temperature variability the data series of mean temperature have an asymmetric distribution in the sense that less frequently occurring but significant positive anomalies cause the high standard deviations. The cold sea currents advancing all the way to the tropical belt also increase the standard deviation of temperature (Péczely 1974m). He analysed the global system of water vapour supply (Péczely 1983b). He determined the global distribution of the atmospheric water vapour supply based on monthly mean values. He determined the water vapour supply for an 11 km high air column of unit section based on the surface water vapour pressure and the monthly means of the temperature. He determined the average water vapour content per latitude based on the mean monthly and annual values of water vapour pressure of each station. He found the maximum average water vapour content in August while the minimum in February. This finding suggests that the atmospheric water vapour supply is mainly regulated by the intensity of evapotranspiration in the continental areas of the northern hemisphere. By comparing the means of precipitation and water vapour he determined the precipitation efficiency (Péczely 1983b). He also studied the annual changes in the amount of atmospheric water vapour. He established that this change was the most significant in the monsoon areas of the Earth whereas the smallest change is experienced in the equatorial areas as well as in the areas with low evaporation such as deserts and polar areas (Péczely 1985). He examined the statistical characteristics of the spatial distribution of precipitation in the Danube catchment area (Péczely 1971c). He presented some characteristics of the precipitation distribution of Earth: the variability of annual precipitation (Péczely 1973a), and the relative and absolute extent of the different areas with different annual amount of precipitation by 10° zones. Based on the mean annual course of precipitation he determined the degree of concentration of precipitation within one year (the mean of the wettest month as the percentage of the mean annual precipitation). He also defined the season with the minimum and maximum precipitation and distinguished 10 formal types based on this. By grouping the season of the precipitation maximum according to the thermal seasons he distinguished 8 genetic types of our Earth's precipitation systems (Péczely 1973b). He examined the extreme precipitation fluctuations in the tropical zone of the Pacific-ocean and its relations with changes in the precipitation of the other climatic areas of the Earth. Based on data from the Eastern Pacific-ocean region he pointed out that precipitation fluctuations in the equatorial areas are strongly related to temperature changes in the equatorial section of the Peru sea current and the cold eastern section of the South Equatorial current (Péczely 1978). Besides that he analysed the precipitation distribution types of the tropical zone of the Pacific-ocean and some further relationships between the circulation above the Pacific-ocean and precipitation changes in the equatorial area (Péczely 1978). The manuscript of his final work got to the editorial board of Időjárás incomplete, after his unexpected decease on 1 March 1984. The editors finished the last sentence, which had been left in half, and the article was thus published. In this work he studied the precipitation fluctuations of the Sahel-area in relation to the weather anomalies of the Earth. Between 1931 and 1960 water availability in the Sahel-belt had been relatively favourable. The dry period that followed started in 1968, and still lasted when this paper was being written in 1984. Professor Péczely showed a realistic positive correlation between the precipitation anomalies of the Sahel area and the development stages of the South Pacific and South Atlantic subtropical anticyclones. However he also found a negative correlation with the Northern Atlantic subtropical anticyclone. He also pointed out a significant negative correlation between precipitation in the Sahel region and the precipitation of the equatorial region of the Pacific-ocean as well as the water temperature of the Peru sea current's sphere of action (Péczely 1984b).

4. POPULAR SCIENCE ACTIVITIES

Besides his scientific writing activity Prof György Péczely also pursued a wide variety of scientific educational work. It was impossible to collect all such lectures and publications. He published a lot in the journals Légkör ('Atmosphere'), Élet és Tudomány ('Life and Science'), and Ternészet Világa ('The natural world'). In addition, a number of his writings were published in the scientific section of Népszabadság. In this daily newspaper he wrote, among others, about weather forecasting methods, the El Niňo phenomenon observed in the southern Pacific-ocean basin, and its global effects, of the warm January in 1983, ($\bar{t}$ = 3,6°C), and several other current and interesting climatological problems.

5. EPILOGUE

In the course of his life's work, prof. György Péczely published 9 textbooks and lecture notes, 101 articles and 17 educational articles, 6 conference articles. However, this list is not complete. It does not contain the publications published in other forums, and left out a number of informative articles, including those published in the previously mentioned journals and Népszabadság.

Péczely professor is the father of statistical climatology based on modern methods in Hungary. He used to solve the climatological tasks set by himself with a brilliant sense and exact procedures. He cultivated very wide areas of climatology. He was an extremely productive researcher. At six o'clock in the morning, his was at his desk and sat there until midnight - working fast and a lot. He never had any time. During the day, we often exchanged a few words. He always asked, what's up? However he only heard parts of the answer because he went on with his work. Still we always found a way to regularly discuss matters of scientific and other work.

He really liked students and liked to talk with them; on such occasions he felt like a student himself. The wisdom from his knowledge and the experience of age brought about a relaxed atmosphere and good conversations which are good to remember. In his presentations he always kept the attention of the audience. His lectures on Climatology and General meteorology have never been boring and dry presentations, but he brought up examples in any topic which made it easier to understand and coloured the lecture. As an outstanding teacher he attracted dozens of students to the department who carried out scientific work within their chosen topics. He created such a lively working environment that the fame of the Scientific Student Circle of Climatology went far and wide, throughout the university. Thanks to his work the Meteorology section of the National Scientific Student Conference was divided and a new Climatology section was established. On one occasion 13 of his students had presentations at this prestigious event. His students won numerous prizes and acknowledgements at these conferences.

His greatest work, earning the most scientific attention, is undoubtedly the definition of the macrosynoptic situations of Hungary. This area of his work has a very wide basis of publications. It was the publications in this topic that were most often quoted in the Hungarian scientific literature and are still quoted these days. At the Department of Climatology and Landscape Ecology where his work is still being continued, new articles are often published which refer to his work.

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