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INFLUENCE OF ATMOSPHERIC POLLUTION ON MOUNTAINOUS RECREATIONAL TERRITORIES BIOCLIMATIC CHARACTERISTICS (CREATION OF MEDICAL WEATHER FORECAST SYSTEM)

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In mountainous resort regions climatic peculiarities are important recreational factor with clear sanitary effect due to high air clearness, moderate natural hypobaria (reduced air pressure), hypoxia (reduced oxygen weight content), increased air ionization with low ion unipolarity coefficient, presence of biologically active solar radiation, high reiteration of favorable weather for continuous staying outdoor, significant duration of sunshine and other favorable climate peculiarities.

But besides favorable weather and climate peculiarities there are biotropic features concerned with drastic changes of weather regimen, phenomena of unusual for such regions natural hyperthermy, hypothermy, hypobaria, hypoxia, deionization, which cause different level meteopathic reactions to meteo-sensitive patients.

For preventing such occasions within the frame of RFBR Project 04-05-08047-ofi-a in the mountainous recreational region of Caucasus Mineral Waters the system of medical weather forecast is creating.

The system is based on the criteria developed by authors for estimation of bioclimatical potential of mountainous recreational areas which include thermal regimes (estimation of weather comfort and severity, daily changeability and deviation from normal temperature), radiation regimes (integral and UV solar radiation, duration of sun shine, nebulosity), circular regimes (character of cyclonic, anticiciclonic and frontal activity in near-surface atmosphere, contrast of weather change, wind regimes peculiarities), humidity regimen (humidity variations, "stuffy" weather phenomena), estimation of snow blanket and biotropic atmospheric events (mist, snowfall, storms etc.), baric regimes (daily changeability and deviation from normal air pressure), air ionization (concentration of negative and positive ions, positive to negative ions ratio) and other parameters.

The system includes complex investigation of aerosol pollution (especially forming invertions which cause rapid air pollution grow) with simultaneous control of biotropic weather influence on meteo-sensitive patients at different weather types: anticyclonic, cyclonic and frontal, causin blood pressure changes and other negative reactions. Weather types are determined by efficient meteorological forecast which include synoptic situation forecast and dynamic forecast of local meteo-elements calculated according to MM5 model for each town of resort region of Caucasus Mineral Waters. The level of meteo-sensitive patients' weather biotropy is estimated in clinical conditions through objective clinical-physiological parameters and subjective tests. Preliminary results show biotropic role of near-surface atmosphere aerosol pollution, especially concerning patients with pathology of breath organs and allergy.

In future such systems of medical forecast can be created for resort regions like Cyprus, Dubai and other countries where atmospheric pollution have significant influence on air quality.