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Aerosol characterization and its climatology over high altitude location in central Himalayas

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Our climate is strongly influenced by the manner in which solar radiation is absorbed and scattered in the Earth's atmosphere. Atmospheric aerosols play an important role in modifying the radiation budget of the earth-atmosphere system. These aerosols have a direct impact on the atmosphere as they scatter and absorb solar and infrared radiations and indirectly affect the size distribution of cloud droplets. Hence, the knowledge of aerosols' characteristics is the basic requirement for understanding their impact on the Earth's climate. In this context the Asian region assumes great importance because of its high population density and diverse human activities. Hence aerosol characterization studies have variously been reported from this region. Most of these studies focused to either urban/semi-urban landmass or oceans adjacent to densely populated coastal belt. However, such investigations from a remote high altitude and sparsely inhabited location have the importance of providing a sort of background level, against which the urban impacts can be compared. In this perspective aerosol characterization program was initiated in the year 2002 at Manora Peak (29.36°N; 79.45°E, altitude ~2000 meters), Nainital: a high altitude location in central Himalayas. Winter time observations reveal that the aerosols in this region provide a "far-field picture," quite away from potential sources and are more representative of free tropospheric conditions. This implies as to provide the background level of aerosols against which the impact of aerosol loading from outlying low regions can be assessed. We present the results obtained from the measurements of various aerosol parameters and their climatology over the site

Biography

Dr. P. Pant is a senior scientist and head of the Atmospheric Science Division at ARIES, Nainital. He has been carried out research & developmental work in multifarious fields such as: solar activity, space weather, effects of surface layer turbulence on astronomical seeing, aerosol characterization, lower and middle atmosphere, lightening generated atmospherics etc. He has published more than 50 papers. He has reviewed papers for various reputed journals and PhD thesis in Atmospheric Science. Dr. Pant is principle investigator of various projects funded by Indian Space Research Organization-Geosphere Biosphere Program (ISRO-GBP) for pursuing the research program in atmospheric science at ARIES, Nainital.

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Oxygen, carbon and sulphur isotope studies in the Keban Pb–Zn Deposits, Eastern Turkey; an approach on the origin of hydrothermal fluids

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Pb–Zn deposits are widespread and common in various parts of the Taurus Belt. Most of the deposits are of pyrometasomatic and hydrothermal origin. The Keban Pb-Zn deposits are located along the intrusive contact between the Paleozoic - Lower Triassic Keban Metamorphic Formation and the syenite porphyry of the Upper Cretaceous Keban igneous rocks. Various studies have already been carried out; using fluid inclusion studies on fluorite, calcite and quartz on the pyrite-chalcopyrite bearing Keban ore deposits. This study focuses on the interpretation of stable isotope compositions in connexion with fluid inclusion data. Sulfur isotope values ($\delta^{34}S$) of pyrite are within the range of -0.59 to +0.17 $_{V\text{-}CDT}$ (n=10). Thus, the source of sulphur is considered to be magmatic, as evidenced by associated igneous rocks and $\delta^{34}S$ values around zero"0". Oxygen isotope values $\delta^{18}O$ of quartz vary between +10.5 and +19.9 $\%_{(SMOW)}$. However, $\delta^{18}O$ and $\delta^{13}C$ values of calcite related to recrystallized limestone (Keban metamorphic formation) reach up to +27.3 $\%_{(SMOW)}$ and +1.6 $\%_{(PDB)}$, respectively. The $\delta^{34}S$, $\delta^{13}C$ and $\delta^{18}O$ values demonstrate that skarn-type Pb-Zn deposits formed within syeno-monzonitic rocks and calcschist contacts could have developed at low temperatures, by mixing metamorphic and meteoric waters in the final stages of magmatism.

Biography

Leyla KALENDER was born in Turkey in 1968. She received her Bachelor's degree in Geological Engineering from the University of Firat in 1989 and her M.S. degree from the University of Firat in 1992, and her PhD. degree from the University of Firat in 2000. She has been studying ore deposit and geochemistry, environmental geology, isotope and fluid inclusion geochemistry in East Anatolian region. She has participated in 16 reserach projects in Turkey, and 1 EU Project in England. Her studies have been published 6 research papers and 5 abstacts in international journals and ten national papers and 14 abstracts in regional journals

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