

FROM COSMOS TO MEGACITIES: THE GREAT SCIENTIFIC VISIONS OF A. P. MITRA

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A. P. Mitra's early pioneering works were on the morphology of ionosphere over Calcutta, solar tides in the ionosphere and electron-ion recombination coefficient. The discovery of radio noise from cosmos as a technique for studying the D- and F- regions of the ionosphere at CSIRO, Australia was his most outstanding and highly cited work. His earliest contribution in the field of space research was on the development of atmospheric models of the upper atmosphere from satellite drag data. And in the early sixties he established a very extensive radio system for studying the ionospheric effects of solar flares, which eventually resulted in the publication of an excellent and the only available book on this topic. He introduced six-ion model, which could explain the behavior of D - region electron density and ion composition during normal as well as disturbed conditions. Mitra planned and supervised the Indian Middle Atmosphere programme (IMAP) as Chairman of its Scientific Advisory Committee and generated a minor constituents model (based upon several balloon, rocket and ground based measurements) which is first of its kind for the tropical stations. He was the leader of the Indian scientific team of the International project INDOEX- the Indian Ocean Experiment which discovered the presence of an extensive brownish layer of pollutants and particles resulting from biomass burning and fossil fuel use. During the later part of his research career, which spanned till his death, Mitra got intensely involved in environmental topics of immediate social relevance like the tropospheric and stratospheric ozone, methane emissions from rice fields, national inventory on greenhouse gases and problems relating to megacities on emissions of trace gases of particulate matter and thus was as much of an environmental scientist as the earlier more known as radio scientist.
