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## Aerosol characteristics at Challakere

Aerosols are amongst the atmospheric trace species of great scientific interest in climate studies. The Intergovernmental Panel on Climate Change (IPCC) has highlighted its relevance and the large uncertainty in climate change. S. K. Satheesh *et al.* (**page 615**) report results obtained from a series of field experiments, carried out in the second campus of Indian Institute of Science (IISc) in Challakere, Chitradurga district of

Karnataka. During these experiments, simultaneous measurements were made of spectral aerosol optical depths (AOD), black carbon (BC) mass concentration, total and size segregated composite aerosol mass concentrations. Surprisingly, unexpected for a dry region, most of the aerosol mass (>80%) resided in the submicron size range. Though the mass concentration of BC was low during daytime, large enhancement occurred during the morning hours due to contribution from the entrainment zone. BC contributed ~3.3% to total aerosol mass, implying a significantly low aerosol-induced absorption of solar radiation and hence consequent atmospheric warming. The measured AODs were remarkably low, in the range of 0.12 to 0.18, comparable to those observed at high altitude sites in Himalayas during episodes. Reduction of surface reaching solar radiation was estimated to be ~12 $Wm^{-2}$. Long-term (11 years) satellite data over the Indian region indicates that AOD is lowest over northern Karnataka (which includes Challakere). This makes Challakere suitable for a remote continental background site to make aerosol and radiation measurements for assessment of climate impact of anthropogenic aerosols. Because of these features, the authors conclude that, this location is best suited for establishing a national radiometric calibration facility and provides the rationale and major science goals for establishing a climate observatory providing long-term measurements.

## Sacred groves and sacred sites

Typology of the sacred groves is based on a collective analysis of seven essential criteria which bottom-line their classification – the sacred trees within, are considered as the abode of supernatural powers, which constitute a piece of natural vegetation, well delineated from the tampered surroundings and associated with some historical, cultural or religious issues with strict taboos against slightest damage to the trees. The groves possess immense communal sanctity and are strictly protected from outside interference as the sacred values attached to them are not restricted to any particular religion but are based on the religious perceptions of the local community. However, sacred sites are active pilgrimage centres of regular worship of sacred deity (god or goddess) with ongoing religious rituals. Many sacred sites often possess conserved natural flora and fauna in the surrounding undisturbed forest and are sometimes misinterpreted as 'sacred groves'. Inadequate understanding on the typology of sacred groves is likely to result in a chaotic inventory and erroneous surge in their number. Arti Garg (**page 596**) provides a modern definition of sacred groves and elaborates the differences between the two closely allied terms – 'sacred groves' and 'sacred sites', to avert further confusion. She has specified that the typological characterization of sacred groves must be based on conscientious investigation and exhaustive analysis of all the essential attributes coupled with the distinguishing variations from sacred sites in order to generate authentic inventory of sacred groves for future conservation, management and sustainable utilization of these diversity-rich, climax vegetational units and centres of preserved biological diversity.

## Population estimate for the weaver ant

A quick and non-destructive population estimate for the weaver ant *Oecophylla smaragdina* Fab. (Hymenoptera: Formicidae) has been developed using simple linear and curvilinear models that have high coefficient of determination value. *O. smaragdina* is a species of arboreal ant found in Asia and Australia. They make nests in trees made of leaves stitched together using the silk produced by their larvae. The ant population in the nest can be determined by regressing the easily measurable independent variable, the number of leaves involved in nest construction which is far less cumbersome and enable large area sampling in quick succession. Being arboreal and highly gregarious, requirement of appropriate models to facilitate population estimation helps to design colony relocation studies to use them more efficiently in biological control in fruit plantations. See **page 641**.