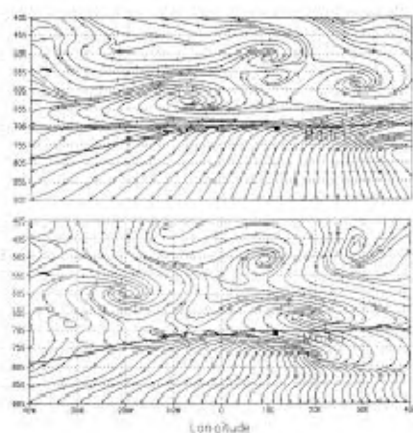


## In this issue

### Aerosol characteristics over Antarctica

The aerosol radiative forcing, which is the measure of the change in the radiation budget, has become a major issue in recent times, particularly because of the various new findings about how aerosols can counteract the greenhouse warming in some locations and can add to warming depending on



scattering or absorbing properties of the aerosol. Gadhavi and Jayaraman (page 296) present an interesting finding about how the surface albedo can also play a major role in the radiative forcing. The results, coming out of the 20th Indian Antarctic expedition show that even the scattering aerosols, present in minute quantity can contribute to a positive forcing over this pristine area, mainly because of the highly reflective landmass below (high surface albedo).

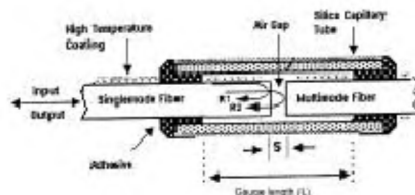
### Crystal structure of cyclophilin

*Leishmania donovani* is a dimorphic protozoan responsible for kala azar in

humans. The parasite is relatively insensitive to the drug cyclosporin (CsA), though a wide variety of other parasites (*Plasmodium falciparum*, *Schistosoma*, etc.) find CsA highly toxic. The receptor for CsA is an ubiquitous class of proteins called cyclophilins, which also exhibits peptidyl-prolyl *cis-trans* isomerase activity, in addition to drug binding. The crystal structure of cyclophilin from *Leishmania donovani* at 3.5 Å resolution as reported by Banerjee *et al.* (page 319) confirms the structural conservation of its CsA binding site geometry with respect to human cyclophilin, which exhibits high binding affinity for the drug. The structural studies thus tend to confirm an earlier report (Dutta *et al.*, *J. Biol. Chem.*, 2001, **276**, 19294–19300) attributing drug resistance in *L. donovani* to low expression of cytoplasmic cyclophilin coupled to efflux of the drug by the parasite rather than inability of the drug to bind to its receptor.

### Fabry–Pérot interferometric sensor

In the last decade, optical fiber sensors, owing to their advantageous features, have become important for health monitoring of advanced existing and futuristic civil and aerospace



structures. An Extrinsic Fabry–Pérot Interferometric (EFPI) sensor has re-

cently evolved as an extremely useful bondable and embeddable sensing configuration particularly for application in structures. The sensor basically comprises a small air cavity created between two cleaved fiber ends aligned in a silica tube. The EFPI output is not affected by transverse strains and the sensor only responds to the axial strain components. This sensor can be manufactured with an extremely small size enabling essentially point measurement of strains. An EFPI sensor has been fabricated in the laboratory and tested. Nahar Singh *et al.* (page 309) have studied the sensor performance in a cantilever configuration and it was found comparable to those of conventional strain gauges.

### Single nucleotide polymorphisms among Jarawa

A systematic discovery and validation study of single nucleotide polymorphisms (SNPs) was undertaken by Sunita Singh *et al.* (page 326) in two autosomal genes, *ICAMI* and *TNF- $\alpha$* , among the Jarawas inhabiting the Andaman and Nicobar archipelago. The origin of the Jarawa remains an enigma. They are known to have passed through demographic bottleneck(s). Many hitherto unreported SNPs have been discovered in this population. The Jarawas show restricted genetic variability, including a small number of haplotypes and absence of rare SNPs. This may be due to the joint effects of genetic drift and purifying selection, because the population has passed through bottleneck(s) and the genes that have been studied are known to be involved in many diseases.