

instrumentation; three-dimensional fields of key atmospheric trace constituents, solar spectral flux and meteorological parameters;

- (iv) instrument development, including satellite and non-satellite sensors for atmospheric trace constituents, solar flux and meteorological parameters;

(b) Research into health, biological and photodegradation effects

- (i) the relationship between human exposure to visible and ultra-violet solar radiation and (a) the development of both non-melanoma and melanoma skin cancer and (b) the effects on the immunological system;
- (ii) effects of UV-B radiation, including the wavelength dependence, upon (a) agricultural crops, forests and other terrestrial ecosystems and (b) the aquatic food web and fisheries, as well as possible inhibition of oxygen production by marine phytoplankton;
- (iii) the mechanisms by which UV-B radiation acts on biological materials, species and ecosystems, including: the relationship between dose, dose rate, and response; photorepair, adaptation, and protection;
- (iv) studies of biological action spectra and the spectral response using polychromatic radiation in order to include possible interactions of the various wavelength regions;
- (v) the influence of UV-B radiation on: the sensitivities and activities of biological species important to the biospheric balance; primary processes such as photosynthesis and biosynthesis;
- (vi) the influence of UV-B radiation on the photodegradation of pollutants, agricultural chemicals and other materials;

(c) Research on effects on climate

- (i) theoretical and observational studies of the radiative effects of ozone and other trace species and the impact on climate parameters, such as land and ocean surface temperatures, precipitation patterns, the exchange between the troposphere and stratosphere;
- (ii) the investigation of the effects of such climate impacts on various aspects of human activity;

(d) Systematic observations on:

- (i) the status of the ozone layer (i.e. the spatial and temporal variability of the total column content and vertical distribution) by making the Global Ozone Observing System, based on the integration of satellite and ground-based systems, fully operational;
- (ii) the tropospheric and stratospheric concentrations of source gases for the HO<sub>x</sub>, NO<sub>x</sub>, C10<sub>x</sub> and carbon families;