**Space-time Modelling of Environmental Data**

The earliest goal of remote sensing in the 1970s was to monitor changes on the Earth's surface over large areas through systematic and repeatable measurement. However, until recently, difficulties associated with processing the data (in particular, through atmospheric correction and geometric correction of large time-series), and insufficiently long time-series of images have meant that this goal has been difficult to realize. However, the recent availability of three main sources of imagery have changed this situation. Specifically, AVHRR and GIMMS imagery have been provided for a long time but at coarse spatial resolution. Since 2000 MODIS and MERIS imagery has been provided at 1 km (and finer) spatial resolutions with daily revisit capability. And since 2006, the Landsat archive dating back to 1972 has been made freely available, providing global data every 16 days with a 30 m spatial resolution. These data sources can now be processed adequately to provide coherent image stacks that can be used to investigate changes on the Earth's surface. This paper demonstrates the use of space-time MODIS and MERIS imagery to investigate the vegetation phenology of the major tropical vegetation types in India. It also demonstrates the use of Landsat TM image stacks to investigate morphological changes in the planform of the Ganges mega-river in India. Some of the difficulties in producing the maps are discussed and the solutions adopted are explained.