The Global Positioning System of satellite geodesy (GPS) will enable geophysicists to accurately determine their own field sites with significant savings in exploration costs. Other applications of GPS in the Earth sciences offer widespread benefits to both exploration and research. A report 'Geodetic measurement of crustal deformation - the Australian region' was recently submitted to the Australian Academy of Science by a Working Party of the National Committee for Solid-Earth Sciences. This report emphasises the advantages of implementing a vigorous program of geodesy using space technology. GPS, Very Long Baseline Interferometry (VLBI), and Satellite Laser Ranging (SLR) - for scientific purposes in Australia. The report recommends that the Australian region would provide greater accuracy to surveying and navigation if tracking and base-stations were set up.

GPs are used to position the satellites in space accurately and do not require a knowledge of either code to determine point positions, but other receivers use one or other of these codes to determine these higher accuracies can routinely be achieved; that 0.01 ppm with millimetric precision will be accurate in the long term; and that corrections necessary for removing systematic errors in order to ensure accuracies of the same orders could be determined.

Gravity data obtained and compiled by BMR contribute to determinations of (1) accurate GPS orbits, particularly corrections applicable in the Australian region, and (2) the shape of the geoid in order to evaluate geoid-spheroid separations. These separations must be evaluated precisely if they are to be used for calculating precise heights above mean sea level from the ellipsoidal heights given by GPS; BMR has commenced research into ways of determining the shape of the geoid more accurately in co-operation with several other institutions with geodetic interests.

The rate of introduction of GPS into Australia will accelerate rapidly as the present high cost of receivers reduces dramatically over the next few years. User groups have been meeting in the ACT/NSW and Queensland regions for some months, and the National Mapping Council is setting up a committee to consider GPS. Examples of GPS surveys completed or planned this year include navigation of geophysical survey vessels and aircraft, surveying of power lines, location of fixed positions, and aircraft, surveying of power lines, location of fixed positions.

For further information, contact Mr Brian Barlow at BMR.

Available soon

BMR 85
BMR 85 is the yearbook of the Bureau of Mineral Resources, Geology and Geophysics, containing geoscientific research, resource assessment, and database development for the year 1 July 1984 to 30 June 1985.

BMR 85 summarises the first full year's results of investigations in the Amadeus Basin, the object of an entering new multidisciplinary project by BMR in collaboration with scientists from other government institutions, universities, and industry.

BMR 85 outlines plans for an exciting program of research beginning in 1987 for the Bass Geoblocking Geophysical Laboratory.

BMR 85 synthesises the main results of running projects - now concluded - on unconformity-related uranium deposits, on continental shelf basins in the Bass Strait region, and on the gold-tungsten province of the Davenport (NT) region.

BMR 85 discloses BMR's new initiative to establish a national capacity to provide information on underground nuclear explosions, and an international data centre to transmit and process seismological data.

BMR 85 describes the scope of new projects - just started - on the Otway Basin, Lord Howe Rise, Kerguelen Plateau, extension tectonics in Australia, and evolution of the Australian Provinces.

BMR 85 is all of these things — and a lot more. BMR 85 will be available by November from the BMR Bookshop.