Outlook for Studies of Magnetic Felds with Solar-B

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The Solar-B satellite, the successor of Yohkoh (Solar-A), will be launched in 2006 September. Solar-B is a Japan-US-UK joint project with contributions for downlink connections from ESA. The mission will focus on high resolution optical imaging with magnetography, coupled with X-ray imaging and XUV spectroscopy. The optical telescope on Solar-B is a 50cm-diameter reflector with a resolution of 0.2", and for the first time we will be able to study the emergence and evolution of magnetic fields in the finest scale ever observed. Physics of elementary flux tubes as well as micro-structures in larger flux tubes (sunspots) are among the top-priority research targets of Solar-B. In order to carry out these studies, analysis methods (e.g. Stokes profile inversion) will have to be improved because elementary flux tubes are nearly (but not completely) resolved and the introduction of a simple 'magnetic filling factor' may not be adequate.