

Physics of the Earth as a Planet  
Course Syllabus – Michaelmas term 2010

Monday, Wednesday, Friday – 11 am – Small lecture theatre

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October 8	Introduction to Geophysics and static structure of the Earth – M <sup>c</sup> Kenzie
October 11	Plate tectonics – M <sup>c</sup> Kenzie
October 13	Magnetic anomalies and past plate motions – Deuss
October 14	Wine reception for Part III students – 4:00 pm Bullard tea room – Madingley Rise
October 15	Gravity, isostasy and creep – Deuss
October 18	Thermal structure of plates – Deuss
October 20	Plate flexure – Deuss
October 22	Introduction to seismology, continuum mechanics – Priestley
October 25	Elastic waves – Priestley
October 27	Interaction of seismic waves and boundaries – Priestley
October 29	Seismic body waves – Priestley
November 1	Seismic surface waves – Priestley
November 3	Earth velocity structure from seismograms – Priestley
November 5	Earth structure from crust to transition zone – Priestley
November 8	Earthquake source – Priestley
November 10	Determining earthquake source parameters – Priestley
November 12	Application of earthquake seismology to continental tectonics – Jackson
November 15	Normal modes of the Earth – Deuss
November 17	Earth structure from transition zone to core – Deuss
November 19	Postglacial uplift – M <sup>c</sup> Kenzie
November 22	Fluid dynamics of mantle convection – M <sup>c</sup> Kenzie
November 24	Approximate boundary layer analysis – M <sup>c</sup> Kenzie
November 26	Forces on plates maintaining their motion – M <sup>c</sup> Kenzie
November 29	Hawaii – a synthesis example – M <sup>c</sup> Kenzie, Priestley
December 1	Planetary geophysics: Venus and Mars – M <sup>c</sup> Kenzie

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Bullard Lecture theatre – times to be arranged

Week of November 1	Practical 1	– Surface wave dispersion and Earth structure
Week of November 8	Practical 2	– Teleseismic earthquake location
Week of November 15	Practical 3	– Teleseismic earthquake Focal mechanism
Week of November 22	Examples class	
Week of November 29	Examples class	
Week before examination	Revisions session	

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Supplemental reading: C.M.R. Fowler *The Solid Earth*, second edition, CUP  
P. Shearer, *Introduction to Seismology*, second edition, CUP