Carbon Modelling Practical

These are some additional notes and ideas for the GEOG0133 Carbon Modelling Practical.

The overall questions you should seek to address (from the practical, backed up by lecture notes and reading) is:

What do patterns of NPP look like over time/space? (Modelled, and observed)
Why do they follow these patterns?

As with the previous practical, you have been assigned to groups and will be producing a coordinated group presentation in the Friday session.

The practical builds on the previous one that developed an understanding of surface temperature and IPAR data and patterns. At the end of that practical, you could plot and understand IPAR and T data for some given location, as a function of time.

In this practical, we will be using such data to drive a leaf-scale photosynthesis/carbon model based on that in JULES. You should ideally have some understanding of JULES before attempting the practical, and ideally read Best et al., 2011 and Clark et al., 2011. You will also find Sellers et al. (1996) of use.

In the practical, you will look at:

- Factors that control leaf-level photosynthesis for different PFTs and conditions
- Diurnal variations in photosynthesis and controls given DOYs (leaf and canopy scale)
- Canopy scale daily GPP and NPP for given DOYs

You will be given as set of questions and exercises throughout the practical. You could split up investigations among team members based on various factors, such as location (each do different places) or PFT (each do different PFTs). You should aim to address the questions above. You will need to look in the literature for observations of global NPP patterns that you can try to tie in to what you have learned from the practical. Obviously, you will also want to examine GPP to be able to explain NPP.