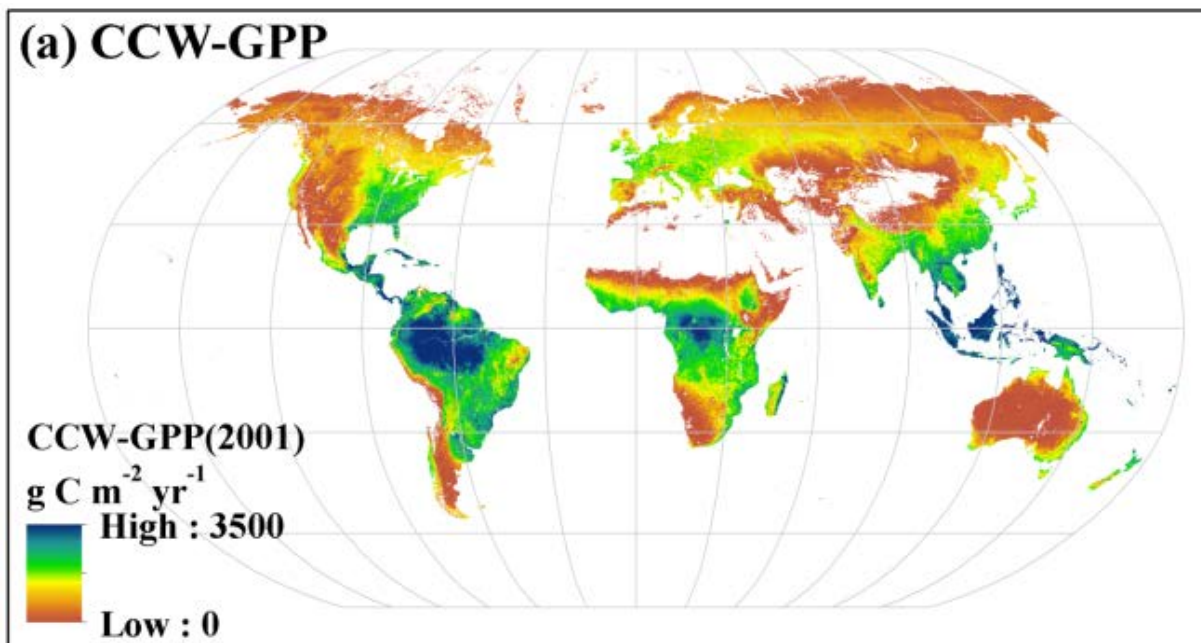


GEOG 577 Advanced Remote Sensing and Image Processing Spring 2023

Instructor: Dr. Conghe Song (email: csong@email.unc.edu; phone: 843-4764)

Class Time: MWF 2:30-3:20PM CH 322

Course Description: This is an advanced course in optical remote sensing. The instructor assumes that you have taken Geog 477 or with equivalent knowledge. The goal of this course is to help students obtain a sound understanding of optical remote sensing physics, and independent research skills in land surface information extraction using space borne optical remote sensing imagery. Images from the Landsat and MODIS satellites will be the primary source of data in the lab exercises for this class. We will use ENVI/IDL as the primary image processing software. The underlying theme of the course is to extract *information on vegetation* from remotely sensed data. Topics of the course include key preprocessing steps of digital images for data analysis, change detection, leaf area index (LAI) estimation and mapping vegetation primary productivity. We will learn how to use information from remotely sensed images in the spectral, spatial and temporal domains. We will also learn how to link ground observations with satellite images for model development or ground truthing using Global Positioning Systems. The formats of the course include instructor lectures, student paper presentations and discussions, and hands-on research oriented labs. Each student will complete a mini-research project by the end of the class.



Global patterns of Gross Primary Productivity (grams of carbon per square meter per year, $\text{gC/m}^2/\text{yr}$) for 2001 estimated based on remotely sensed data from MODIS, climate data and the CCW model developed in Dr. Song's Lab.