CASA (Carnegie-Ames-Stanford Approach) Model

**Description**
Calculation of monthly terrestrial NPP is based on the concept of light-use efficiency, modified by temperature and moisture stress scalars. Soil carbon cycling and Rh flux components of the model are based on a compartmental pool structure, with first-order equations to simulate loss of CO2 from decomposing plant residue and surface soil organic matter (SOM) pools. Model outputs include the response of net CO2 exchange and other major trace gases in terrestrial ecosystems to interannual climate variability (1983 to 1988) in a transient simulation mode.

**Appropriate Use**
Climate change analysis of ecosystem productivity.

**Scope**
Global to regional.

**Key Output**
Global gridded estimates of primary production, above and below ground biomass, leaf area index (LAI), and trace gas fluxes.

**Key Input**
Air surface temperature and precipitation are used together with long-term (30-year) mean values, and surface solar irradiance measurements.

**Ease of Use**
Expertise of ecosystem and biogeochemistry science.

**Training Required**
Yes.

**Training Available**
No formal training offered.

**Computer Requirements**
High end workstation.

**Documentation**
[http://geo.arc.nasa.gov/sge/casa/index4.html](http://geo.arc.nasa.gov/sge/casa/index4.html).

**Applications**
Estimate of current ecosystem productivity.

**Contacts for Framework, Documentation, Technical Assistance**
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**Cost**
Not specified.

**References**

