

### **First time quantification of agro ecosystem of CO<sub>2</sub> exchange in India in Finland**

Scientists from Indian Institute of Tropical Meteorology (IITM), Ministry of Earth Sciences (MoES), Government of India and University of Eastern Finland, for the first time identified and quantified the net ecosystem of CO<sub>2</sub> exchange with the help of Eddy Covariance (EC) method from an oilseed crop in India and a perennial bioenergy crop in Finland. Determining the exact amount of CO<sub>2</sub> levels of the ecosystem will help improve the understanding of Indian southwest monsoon characteristics.

A comparative study of atmospheric CO<sub>2</sub> exchange of sesame and a reed canary grass in two different regions has been conducted using EC to govern subtropical and boreal climate and also to examine the effects of climate variables on ecosystem-atmosphere CO<sub>2</sub> exchange.

The study found that total carbon decomposition by the boreal ecosystem is limited by a short growing season, while moisture loss and low availability of nutrients in the soil impede carbon uptake by the subtropical ecosystem.

A comparative analysis of CO<sub>2</sub> exchange patterns allows us to identify crop management practices suitable for oilseed crops such as sesame, a crop that has high economic value. It will be helpful to assess its carbon sequestration potential and estimate the probable future effects of climate change on its productivity and in turn strengthening our economy.