

Maynooth University Department of Geography invites you to attend our **RESEARCH POSTGRAD PRESENTATIONS**



Date: April 27th

Time: 4.00pm to 5.30pm

Location: Rocque Lab, Rhetoric House



Azucena Jimenez Castaneda — *'Deriving high resolution, on-farm, rainfall estimates from terrestrial and satellite radar data: An application for use in real time nutrient management.'*

Rainfall is a complex stochastic process and exhibits a high spatio-temporal variability. Therefore, the availability of high spatio-temporal resolution coverages of rainfall is important for several fields of study and in particular, agro-meteorology. One source of high spatio-temporal rainfall information is a meteorological rainfall radar. Met Éireann, currently operate two rainfall radars, located at Shannon and Dublin airports. In addition to the two rainfall radar stations, Met Éireann also operates a network of ~20 rain gauges that provide measurements of rainfall every minute and thus provide comparable measurements for use in evaluating the rainfall radar data.

The main goal in this research is to provide a robust basis for developing real-time, farm level rainfall estimates that can be incorporated into a nutrient application decision support system to determine the most suitable periods and locations for fertiliser applications. In this presentation, a preliminary assessment and evaluation of rainfall radar data and surface gauge measurements will be provided.



Kzeem A. Ishola — *'Using a surface energy balance approach to characterise agro-environmental zones in Ireland in support of on-farm decision making.'*

The Island of Ireland is located in a maritime environment where the climate conditions favour grass growth, in turn grassland covers the highest proportion of land area with 90% of agricultural land and 56% of the total land area. Due to this condition, it has developed an efficient dairy based production systems that enhance low cost feed source in the region. However, the desire to optimise farm productivity depends on the management and meteorological conditions of the area. The local agro-environmental conditions can significantly influence the response of grass growth and thus determine the annual profitability of pasture based products. Historical development of agro-environmental monitoring in Ireland has adopted prognostic approaches where routine weather observations have been successfully related to crop growth and productivity. While these approaches have produced reasonable results at local scale, an extension to other areas with no available data require interpolation or statistical downscaling approach which pose large uncertainties in the outcomes due to the dynamic nature of the heat and moisture transfer at the interface between the land surface and atmosphere, and local heterogeneities in the surface physical features. The concept of surface energy balance provide the opportunity to develop a diagnostic approach for characterizing agro-environmental conditions of Ireland, which will enhance our understanding of the biophysical processes and also inform the determination of zones with optimum farm productivity in the country. This talk will therefore present an overview of the proposed approach which for the first time in Ireland seeks to integrate multi source, near real time airborne/satellite and single-level routine meteorological and agricultural observations to derive agro-environmental indices at a high spatial scale.

Department of Geography Seminar Series

All are welcome

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