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Name of ISRO Centre/Unit
National Remote Sensing Centre, Hyderabad

Title of the research proposal
Automated seasonal crop mapping using machine learning approach.

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Area of Research
Remote sensing Applications in crop classification

Summary of the proposed research and expected deliverables

The automated satellite based crop mapping is a still challenge in India because of heterogeneous and fragmented land holdings, complex crop sowing windows and limited ground data. With the increasing spatial and temporal resolution of satellite data time-series in different wavelength range like Sentinel-2, Sentinel-1 etc. provides new possibilities for generating crop type map at local/ regional level.

Keeping the high dimensionality of voluminous satellite data, efficient methodologies for mapping seasonal crop type need to be established. This project will aim in exploring different supervised machine learning models and arriving at an optimum model type (Decision tree, Neural network architecture etc) for regional crop mapping and testing its robustness over different time scale. Automation protocols for crop mapping will be another objective of this proposal.

Scope of the Work:

➢ The scope of current proposal is to develop an operational automated crop mapping technique employing multi-temporal optical and synthetic aperture radar data.

Deliverables:

➢ Automated approach for in-season crop mapping.

➢ Protocols for ground data collection

➢ Validation approach