



STUDY ON THE CROP CONDITION MONITORING METHODS WITH REMOTE SENSING

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ABSTRACT :

It is of great significance to acquire the harvest condition data at early stages in the product developing season. In some cases it is much more imperative than obtaining the correct generation after gather time. Alongside the advancement of remote detecting applications, satellite information has turned into the highest information source to screen huge scale trim condition. Over the most recent twenty years, more than twelve of strategies in view of remote detecting information were produced to screen edit condition in various nations and either the accuracy or the viability of these product condition observing techniques has been enhanced incredibly. Among these techniques the fundamentally are: (1) Direct checking strategy with remote detecting records, which screen trim condition with lists, for example, NDVI or LAI as indicated by its esteems. Typically the higher the lists are, the better the product condition is. (2) Image grouping strategy, which initially did a directed or unsupervised arrangement on the remote detecting information, at that point mark every classification as certain development level with watched information of seedling's developing status which has spatial and fleeting characteristics. (3) In this strategy, contrast and proportion are the lists for the most part utilized. (4) Crop development profile checking technique, which is the differentiation amongst year and year for trim development profile and can mirror the yield developing continuation at time amid edit developing season. Time arrangement of NDVI amid the harvest season are utilized and edit development profiles are framed by getting measurement of NDVI at certain scale, for example, a territory. (5) Crop developing models strategy, this technique utilize the yield developing model (additionally called trim developing modes) to reproduce the developing status of product and gauge the harvest condition with the recreated result. These strategies, alongside their applications, are thought about and dissected and preferences and detriments of every technique are provided in the wake of looking at. As finish of the article, while the satellite information with high recurrence and low spatial determination is as yet the primary information source, the technique for trim condition checking with remote detecting information is creating in the accompanying ways: (1) from subjective observing to quantitative checking; (2) more lists, for example, LAI, TCI, VCI and NDWI are utilized to screen edit condition keeping in mind the end goal to build the observing accuracy; (3) some yield developing models which recreate the product developing procedure are utilized to screen trim condition; (4) GPS, GIS and RS information are joined to improve checking result. The issues to be understood in trim condition checking models are likewise tended to.

KEYWORDS : satellite information , highest information source , contrast and proportion .

1. INTRODUCTION

Agricultural activity is not just one of the fundamental exercises of human culture, additionally the

introduce for the advancement of human culture. Also, it has close connection with the advancement and adjustment of these days society.

Vast scale edit condition observing can give decision making data to the working-out of rural strategy and commissariat exchange. It is likewise the essential introduce for trim creation estimation.

Observing harvest condition with remote detecting can get the state of grain edit seedlings, and additionally the status and pattern of their development. It likewise procures the yield generation data (RAO M. V. K, Ayyangar R. S, 1982). Securing the yield condition data at early phases of yield development is significantly more imperative than procuring the correct generation after collect time, particularly when vast scale commissariat lack or surplus happens.

2. DEVELOPMENT OF CROP CONDITION MONITORING

2.1 Situation in China

China start to focus on the harvest creation estimation with remote detecting as right on time as 1979 and the examination on edit condition checking technique with remote detecting started from the center of 1980s.

After over 20 years look into, China has amassed enough involvement in strategy and framework development to fabricate a worldwide harvest development observing framework. In this condition Institute of Remote Sensing Application (IRSA), Chinese Academy of Sciences, manufactured a framework that can screen the worldwide harvest development with remote detecting information. The framework understands the multi-scale worldwide harvest ocndition observing by utilizing the worldwide NDVI items downloaded from the net as information source and utilizing two checking strategies which are constant checking and yield developing procedure checking. The improvement of the framework was done in 2004. In 2005, the framework was keep running at month to month recurrence to give trim development data in 46 nations and locales to pertinent services and commissions in China. (Wu Bingfang, 2004, Meng Jihua, 2007).

3.2 Classification model

Classification model usually classify the most part characterize the farmland into a few classes as indicated by their distinction in reflectance at various groups. At that point the connection between characterized farmland and the distinctive yield condition seen in the field will be investigated by examination, (for example, backward investigation). At the point when the relationship was discovered the product condition at various ranges can be evaluated with the characterized remote detecting picture. Both Supervised and unsupervised arrangement strategies were likewise connected in edit condition checking and were demonstrated to have a decent observing impact (Li Jianping, Zheng Youfei, 2001; Li Jianping, 2002).

3.3 Same-period comparing model

Same-period looking at models get the relative yield condition for certain period by contrasting the remote detected information, (for example, LAI, NDVI, and so forth) of the period with the information of the period in the history (a year ago generally, or the normal ever) (RAO M.V.K, 1982). In this technique, contrast and proportion are the lists for the most part utilized. The observing consequence of this model can mirror the spatial contrast of harvest condition at various ranges (Meng Jihua, 2007). Yield condition guide can be produced using the observing outcome, from which the client can perceive how much and where the harvest conditions have either disintegrated, stayed unaltered or enhanced (Wu Bingfang, 2004).

3.4 Crop growing process monitoring model

High time recurrence meteorological satellite can get the data of earthly process day by day, which make it conceivable to screen the yield persistently and progressively. NDVI profile of products can be shaped by gather the NDVI esteem along courses of events; it can mirror the change of yield NDVI from planting, seedling, decoration, to development and harvestry. Distinctive harvests have diverse attributes in their NDVI profiles, and even a similar product developing in various situations. So the harvest condition and its developing patterns

can be gotten by investigating the attributes of its time arrangement NDVI profile (Wang Yanyi, 1991; S. M. E Groten 1993; Jiang Dong, Wang Naibing, Yang Xiaohuan, 2002).

3.5 Crop Growing model

Crop Growing models understand the dynamic checking of harvest developing procedure by reproduce the product developing procedure with trim developing models. The basic thought of product developing model is to mirror the yield developing procedure with mathematic equation. The drive of all the yield developing models is the capture attempt of sun powered radiation for vegetation shade and the photosynthesis that create the dry biomass.

3.6 Diagnosis model

Conclusion show evaluate the product condition from the part of condition and condition that will impact trim development. Variables considered in the model incorporate yield phenology and its developing stages, treating circumstance, water stress and dry spell appraisal, occur of product illnesses and creepy crawly bugs, spreading level of weed, and so on. The use of analysis demonstrate was for the most part required by field administration. As far back as 1990s, specialists take a shot at analysis display gave careful consideration to handle preparation and water circumstance than different elements, a ton of models were worked to infer these components that are required by finding model with remote detecting information and awesome advance was accomplished (Wang Jihua, 2001).

4. PROBLEMS TO BE SOLVED

In spite of the fact that the improvement of remote detecting innovation has bring another open door for observing harvest condition and a mass of analysts in the field have been taking a shot at it frame over 30 years, there are still a few issues to be tackled. Above all else, there is no evident definition for trim condition, or specialist in the field don't have a consentaneous concurrence on what the product condition implies. How might we screen the product condition when we don't know what is correct the harvest condition. So it is earnest to frame a definition for trim condition. As author would like to think, this ought to be done from the parts of individual trademark and province normal for crops. At that point the analysts should concentrate on the advancement of quantitative product condition checking models. All the product condition observing models existed are subjective models among which few are quantitative or even semiquantitative model. Quantitative model can give quantitative product condition checking which will be more useful to various levels of yield condition data clients.

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