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## Landuse and cropping pattern classification using satellite derived vegetation indices in the Huaihe River Basin

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Huaihe River Basin is very important granary in China. Not only the crop type, but also the cropping cycle must be specified in good accuracy for the detailed wateruse analysis. In this sense, global landcover datasets have not been validated well enough, and there is some problem in its direct use.

In this study, new landuse classification, especially detailed crop pattern, in Huaihe River Basin is produced from satellite derived vegetation indices (30sec resolution) and surface meteorological data. Agricultural statistic data of 187 Prefectures in Henan Province are used for validation.

Taking the detailed information from the field survey into account, some notable features in time series of NDVI and NDWI for each vegetation/landuse type were obtained. As a result, all area can be classified into 7 categories(water body, urban area, evergreen/deciduous forest, single/double cropping land, and others). Then, accumulated degree-days during growing period is utilized to further divide cropland into 6 types(rice, corn, soybean, peanuts, cotton, and others). At this moment, estimated cropland area for each prefecture tends to be larger than statistics data. Finally, VSW (Vegetation, Soil and Water) classification index is applied for reducing the mixed-cell effect. Estimated total cropland area for each prefecture are compared with statistics data (**Figure 1**). The correlation coefficient of every cropland type are around 0.6-0.8, especially that for paddy field is 0.91. This new landuse dataset will enable us to detailed wateruse analysis as well as precise estimation of energy and water budget in this region.

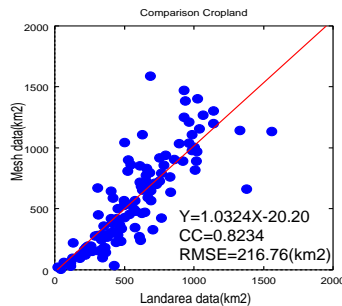


Figure 1. Total cropland area (estimation v.s. statistics)

Keywords: landuse/landcover; crop type; NDVI; NDWI; VSW index

### References

- [1] Sugita M. et al: Scaling of NDVI and VSW index between LANDSAT TM and NOAA AVHRR data, 17th. Asian Conf. Remote Sensing Proc., *L4*, 1-6(1996).