

Technical Issues

The following list contains questions, concerns, and comments posed during the "technical portion" of the Land Cover/Land Use Work Group Meeting.

The geo-rectification committee should address these issues.

1. Should we use leaf on or leaf off imagery (does this affect the interpretability of forests)?
 - We've changed the technology by changing to leaf off
2. Rectification process: Framework data has +/- 40 feet of error, does the rectification process add significant additional error?
3. Rectification process: in RS&GIS method, the accuracy check is sampled by elevation
 - How does the accuracy of the DEM (1:24,000) affect this process?
 - We should talk to local agencies regarding availability of GPS data to use for this process
4. What is the quality of the 1978 data?
 - Overall, the 1978 data is "pretty good," both spatially and thematically
 - Sample study in Grand Traverse township, performed by Dennis Hudson, RS&GIS, found that in an area that contained approximately 1000 urban and rural polygons, there were 10 "gross" errors
5. Our goal should be to produce an "improved" product, not just an "updated" product
6. How difficult will it be to attain ground control points (GCP's) for the rectification process in townships that border the Great Lakes?
7. Is Michigan Georef a FGDC "approved" projection? Is Michigan Georef the best projection to perform this update in?
8. What is ground truth? 1978 or 1999?
9. Should we use digital orthoquads (DOQ's) for our registering/rectifying process? Should we use them for the interpretation process?
 - Current base data is not ortho-rectified (although, it will be at some point in the future), LC/LU data interpreted from DOQ would no longer match State of Michigan base data
 - What DOQ's are currently available? What year are these DOQ's? Are they black and white or color infrared photos (B/W or CIR)?
 - RS&GIS method: uses cross-validation to estimate error across the photo, areas of high local relief need sample points at all "very important points" (VIP's), this method does not produce an ortho-rectified product

10. We want to think "futuristically" with this project!

Land Cover / Land Use Updating Work Group Issues

IMAGIN and RS&GIS

Status of Land Cover / Use Updating

Issue – there is no current listing of which areas of the state have had land cover/use updates completed; nor what procedures, products, or results are available

Propose – conduct a census and summarize the status of land cover / use updates in Michigan (can begin by using the land cover information obtained in the upcoming Clearinghouse Survey being conducted by MIC / IMAGIN)

Classification Systems

Issue – classification system used for updating land cover / use should be compatible with the classification system used in the Current Use Inventory (MIRIS 78) to insure that valid land cover and land use changes can be mapped

Propose – minor modifications be made to the Michigan Land Cover/Use Classification System, reaffirm the Michigan Land Cover/Use Classification System as the statewide standard

Classification Issues

Issue – technical procedures (such as cover vs use, wetlands categories, minimum and maximum sizes, double coding, mixed land use, unambiguous definitions of categories, and photographic examples) need to be clarified

Propose – create a technical committee to address these and other questions/problems with recommendations to the work group for inclusion in the IMAGIN working paper

Data Layers

Issue – the classification systems only refer to additional land information factors, they do not attempt to integrate nor take advantage of the availability or desirability (or possible necessity) of other data layers

Propose – MSU will test the use and inclusion of additional data layers on a test township, and will make suggestions based on the test

Mapping Issues

Issue – mapping procedures (such as topology, polygons smaller than the minimum, boundary matching between maps, base features associated with land cover polygons, and choice of aerial photography including scale, resolution, and presentation) need to be developed

Propose –MSU will use one, or more, township(s) to test procedures and develop methodologies, with recommendations to the work group for inclusion in the IMAGIN working paper

Change Analysis

Issue – lack of consensus of change recognition, procedures, classification ambiguities, and differing classification schemes

Propose – MSU test and document change detection procedures on test township(s), recommendations to the work group for inclusion in the IMAGIN working paper

Accuracy Assessment

Issue – many land use mapping projects have failed to provide a statistically valid estimate of thematic mapping accuracy

Propose – sampling schemes will be developed (including field/site verifications) and applied to the MSU test township(s), accuracys will be reported using a confusion matrix and Kappa Coefficient for land use mapping and for land cover/use changes

Additional Issues