

Michigan Basin Geological Society (MBGS) Meeting

Wednesday, September 9, 2009

“On the Utilization of GNSS Technology in Modern Geology and Geophysics”

By: Dr. Richard R. Sauve II

Leica Geosystems, Inc.

Location: MSU, Natural Science Building

The talk will begin at 7:00 PM in room 116.

Refreshments will be provided after the talk in the Natural Science Building room 207

No charge for this meeting.

Executive Committee Meeting will be held at 4:30 PM at

Claddaugh's Irish Pub in Lansing (members welcome)

Please RSVP for this meeting to:

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Between 5pm & 6pm you can park in Lot 9 behind Giltner Hall and the Psychology Building (former Physics and Astronomy building) for free. Otherwise you can try your luck with the metered slots clustered around the Natural Science Building and the adjacent Student Services Bldg, no charge after 6:00pm.

On the Utilization of GNSS Technology in Modern Geology and Geophysics

By: Dr. Richard R. Sauve II

Leica Geosystems, Inc.

Abstract:

Every geologist and geophysist has at one time or another been faced with issues related to the proper mapping of features. There are many questions involving feature mapping; for instance, how accurate do the positions need to be?, Do I require a precise elevation of the feature, is the feature such that dynamic values will occur and in what spatial reference network does the data need to be referenced? These are typical questions that are at the fore front of all mapping expeditions. Until relatively recently (1980's) the expense related to these most basic mapping operations were for the most part cost prohibited; however, with the advance of GPS (Global Positioning System) in the 1980's and most recently the addition of Glonass / Compass / Galileo and L5 positioning systems the ability to position in 3-D has become a relatively simple task. In this presentation the GNSS (Global Navigation Satellite System) which consists of all of the above satellite systems will be discussed as well as the basic operating parameters (code & phase) as a function of accuracy. In addition applications directly related to the Michigan Basin will be discussed including, The MSRN (Michigan Spatial Reference Network) and it's utilization in measuring plate tectonics, glacial rebound and water vapor and how it's free use can be incorporated into all mapping operations be it academic, commercial, or government.