Preliminary Analysis of Tidal Hydrodynamics of Lake Pontchartrain

MESL RESEARCH GROUP

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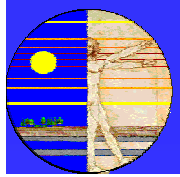
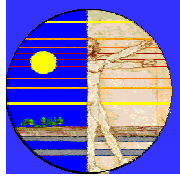


Lake Pontchartrain

- One of the largest estuarine system on the Gulf coast
- Already suffering from several environmental damages
- Hurricane Katrina causes a significant environmental effect again



Satellite image of the area

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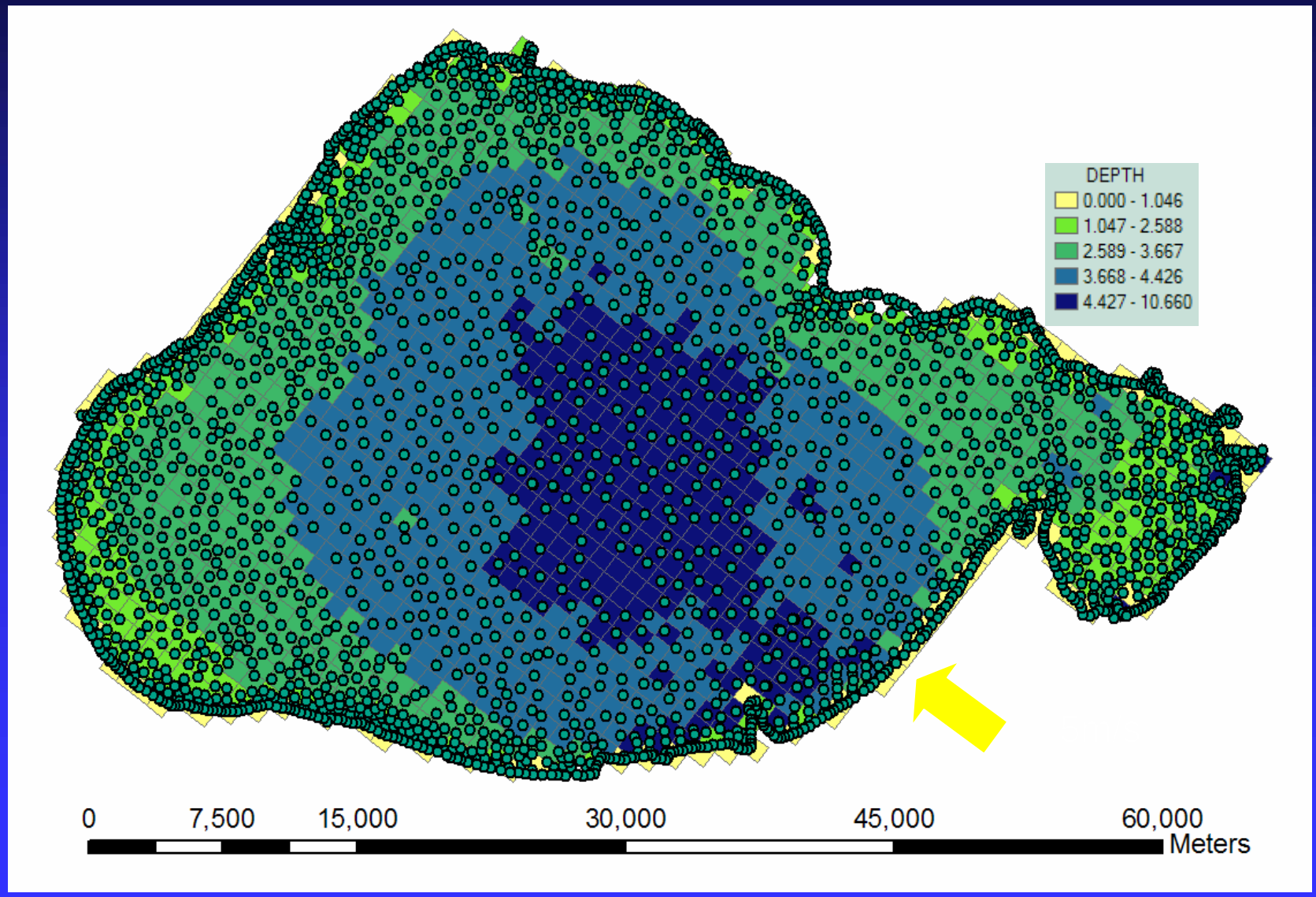
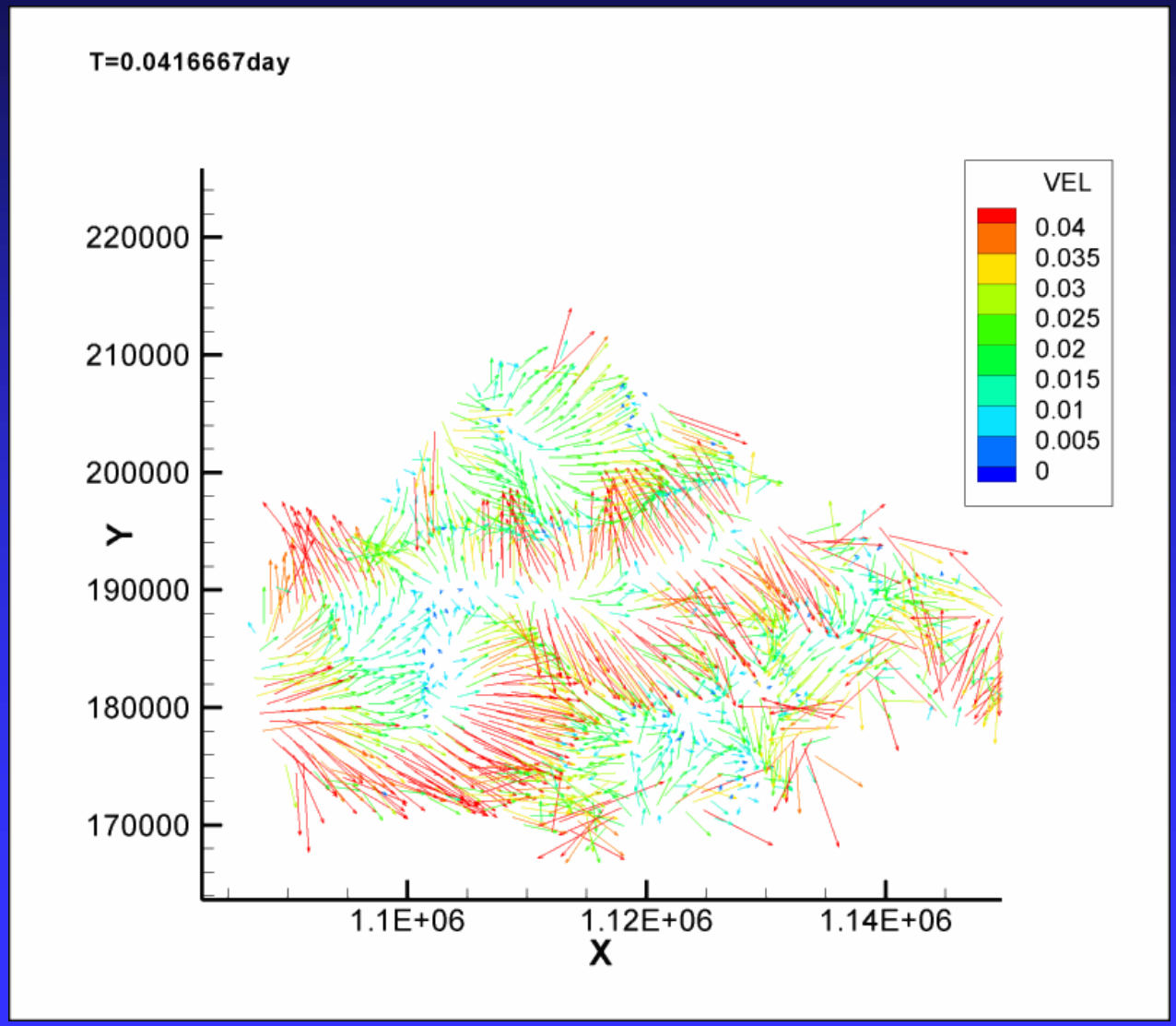
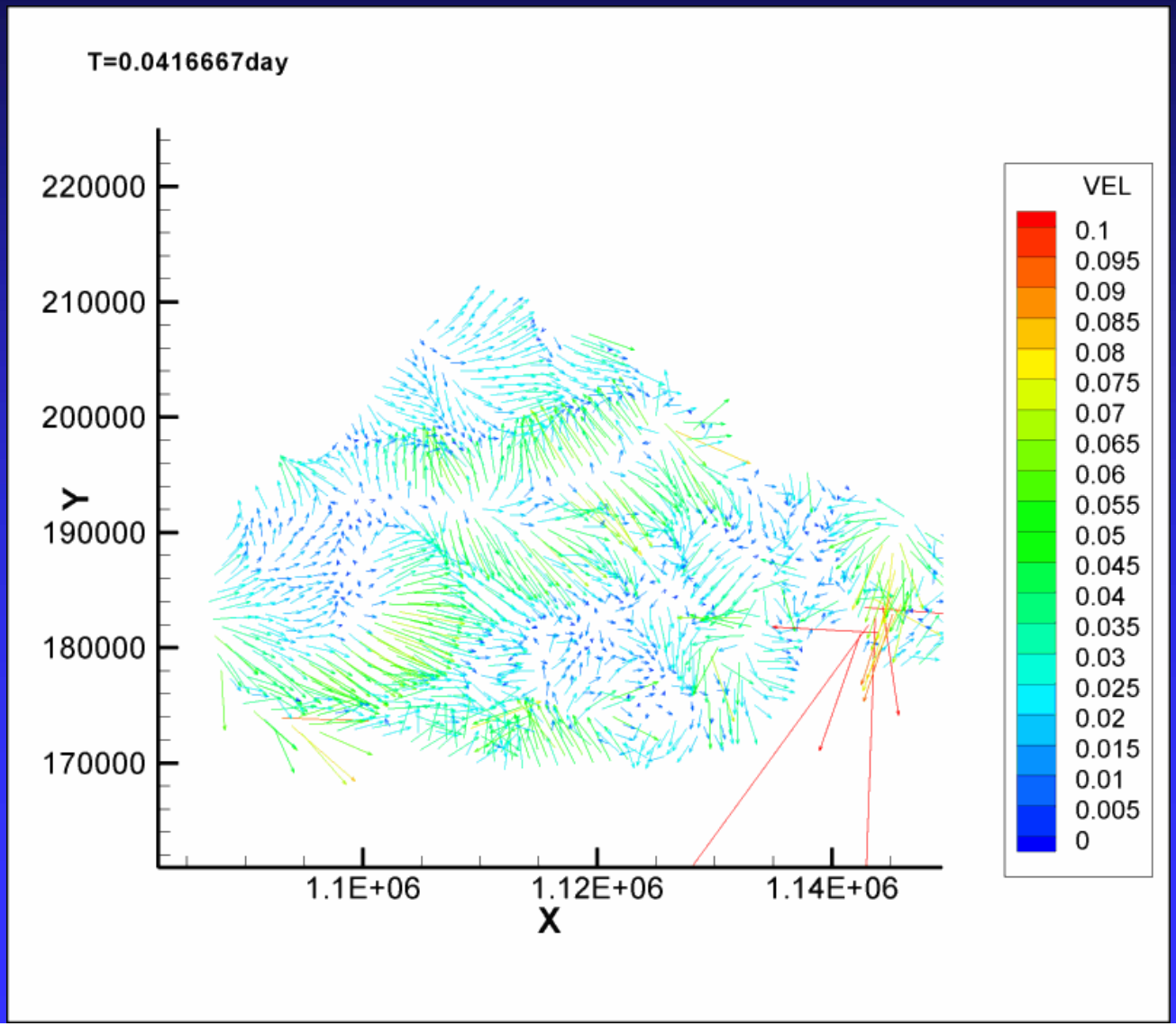
Grid and DEM data



Typical velocity pattern without tidal force

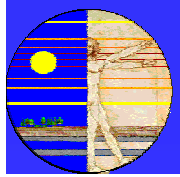


Typical velocity pattern with tidal forcing



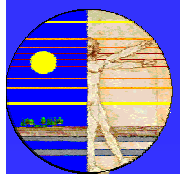
Conclusion

- Wind over the lake generates a flow according to the direction of the wind.
- Tidal forcing seems to play an important role but it does not affect the conditions to the center and west of the lake.



Future work

- Calibrate and improve results.
- Superimpose contaminant fate and transport such as a fugacity analysis.
- Sediment transport.



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http://www.ce.gatech.edu/research/MESL/