### Impacts of Hydraulic Fracturing on Groundwater Resources

1. Zhulu Lin, Tong Lin, Siew Hoon Lim  
   Groundwater Allocation and Management at Bakken in Western North Dakota

### Implications of human activities on water quantity and quality

2. Maksym A. Gusyev, Daniel Abrams, Uwe Morgenstern and Mike Stewart  
   Development of nitrate response curves using MODFLOW-MODPATH, MODFLOW-MT3DMS, and lumped parameter model

3. Adriana Palma Nava, Carlos Cruickshank Villanueva, Fernando González Villarreal, R.T. Hanson and S.E. Boyce  
   A New Integrated Hydrologic Model for Mexico Valley, Mexico City, Mexico

4. Vladimir Prilepin  
   Expedited Groundwater Flow Modeling to Evaluate Construction Dewatering Effects on a Chlorinated Solvent Plume

5. Huanhuan Qin, Ximing Cai, Chunmiao Zheng  
   Macroeconomic-Based Water Demand Prediction for Beijing, China

6. David G.B. Simpson, Yves Meyus, Lotte De Henau, Jos Van Steenwinkel  
   The perfect groundwater model exercise: combining extensive field trials, complex dewatering design AND aquifer thermal energy storage feasibility on one site

7. Nathan R. Rossman, Vitaly A. Zlotnik  
   Simulation of Groundwater Flow and Effects of 21st Century Climate Scenarios on Lakes in the Nebraska Sand Hills

### The Analytic Element Method

8. Zhifang Zhou  
   Basic properties of water balance elementary volume

### Programming Resources for Model Developers

9. Joseph D. Hughes, Mark Bakker, Jeremy T. White, Christian D. Langevin, Vincent Post, Michael N. Fienen, and Jeffrey Starn  
   FloPy Version 3 – a Python package for MODFLOW-based models

10. Xiaohui Ji, Xu-Sheng Wang, Hongqiang Li, Junbao Xia  
    Method for Parallelizing MODFLOW on Multi-GPUs

11. Tariq Laattoe, Vincent EA Post, Adrian D Werner  
    Spatial periodic boundary condition for MODFLOW

### Using Geohydrologic Frameworks in Groundwater Models: Lessons and Progress

12. Brent Meyer, Todd R Kincaid, Kevin E Day  
    Integrating a Geohydrologic Framework Model Into a 3D Groundwater Flow Model to Delineate Wellhead Protection Zones in Bucks County, Pennsylvania

### Modeling of Mines: Applications and Issues

13. Mark Raynor, Alastair Black & William Gibson  
    The PIT Package: A new MODFLOW package to permit the simulation of pore pressure reduction as a result of lithostatic unloading in open pit mining.

14. Brendon Bredenkamp  
    Numerical model simulations of an underground mine to determine reliable groundwater inflow predictions

15. Jonathon Carter, Christopher Muffels  
    De-stranding MODPATH particles in mine-pit dewatering simulations

16. Loring W. Crowley, Gary D. Rogers  
    Modeling of Alternatives for Deep Shaft Grouting

17. Rodrigo Herrera, Cristiano Ortiz  
    Should we increase our grid cell sizes? an example of improving an existing open pit groundwater flow model in an arid environment using MODFLOW-USG

18. Thamer Ahmad Mohammad, Mohamed Azwan M. Zawawi, Ezzuldin Hasan Mohamed  
    Assessment of the Sand Mining Impact on Groundwater Movement and Contamination Using MODFLOW

19. Ranjeet Nagare, Young-Jin Park, Jalpa Pal  
    Integrated Surface Water and Groundwater Modelling: Applications, Challenges and Opportunities in Oil Sands Reclamation

20. Tomás Opazo, Claudia Martínez, Cristian Pereira, Rodrigo Cañete  
    Modeling Fractured Rock Heterogeneity in an Open Pit Mine: Groundwater Model Calibration Using Pilot Points

21. Jake Perry, David Bean, Chris Courtney, Kate Richards, Diana Babshoff  
    Heads or Tailings: Modifying General Head Boundary Conditions to Represent Material Deposition
## Poster Session continued  
**Tuesday, June 2, 5:10 – 7:30 PM**

### Advances in Integrated Hydrologic Modeling

| 22. | James C. Ascough II, Timothy R. Green, Olaf David, Holm Kipka | A Component-Based, Integrated Spatially Distributed Hydrologic/Water Quality Model: AgroEcoSystem-Watershed (AgES-W) Overview and Application |
| 23. | Shi Chen, Haidong Cao, Hao Wang | Analytical Solution for Slanted Well in Grant Sand Tank Model with Constant Head Boundary on Top |
| 24. | Willems de Lange, Jacco H. Hoogewoud | Testing an advanced method for accurate scaling of the surface water - groundwater interaction used in integrated modeling by means of a MODFLOW-based numerical laboratory |
| 25. | Rebecca C. Doble, Trevor Pickett, Russell S. Crobbie, Leanne Morgan | Emulation of recharge and evapotranspiration processes in shallow groundwater environments for improved MODFLOW representation |
| 27. | Bertrand Leterme, Matej Gedeon, Eric Laloy, Bart Rogiers | Unsaturated flow modeling with HYDRUS and UZF: calibration and intercomparison |
| 30. | Gengxin Ou, Xunhong Chen, Ayse Kilic, Shannon Bartelt-Hunt, Yusong Li, Ashok Samal | Development of a cross-section based streamflow routing package for MODFLOW |
| 31. | Scott Painter, Ethan Coon, Adam Atchley, Dylan Harp, David Moulton, Cathy Wilson | Modeling permafrost active layer dynamics in a warming climate |
| 32. | Yong Tian, Yi Zheng, Chunmiao Zheng | Integrated surface water-groundwater modeling for understanding ecohydrological processes in large arid and semi-arid river basins |
| 33. | Juliette A. Woods, Tariq Laattoe, Virginia Riches, Adrian Werner, Carl Purczel | Simulating Saline Floodplains |

### Unsaturated Zone and Multiphase Modeling

| 35. | Sharon Wadley, Groenevelt, H., Wealthall, G., Dollar, P., Wilkinson, G., Moss, R | Development of flow and transport model for assessing plume migration through the unsaturated zone at a former waste disposal site in fractured bedrock |
| 36. | David Li | A Case Study of Heat Transport Simulation for Injection at the Woleebee Creek, Australia |
| 37. | Benjamin Wallen, Andrew C. Trautz, Kathleen M. Smits | Comparison of evaporative fluxes from porous surfaces in the unsaturated zone resolved by remotely sensed and in-situ temperature and soil moisture data for use in multiphase modeling |
| 38. | Michael Plampin, Rajesh J. Pawar, Tissa H. Illangasekare | Intermediate-Scale Experimental Investigation of CO2 Attenuation in Layered Shallow Aquifers During Leakage from Geologic Sequestration Sites |

### Geochemical and Biogeochemical Reactive Transport Modeling

| 41. | Raymond Johnson | Approaches for Downgradient Reactive Transport Modeling at Uranium In Situ Recovery Sites |