

7th ALERT OLEK ZIENKIEWICZ COURSE ON UNSATURATED SOIL MECHANICS: FROM FUNDAMENTALS TO APPLICATIONS

Final program

Monday 25th May 2015: Fundamentals of Unsaturated Soil Mechanics

9h00-9h15: Welcome address

9h15-10h35: Introduction and fundamental variables in unsaturated soils mechanics (E. Alonso)

10h35-11h00: Coffee break

11h00-12h00: Reference behaviour of a low plasticity, open structure silty clay (E. Alonso)

12h00-13h00: Elastoplastic modelling in unsaturated soils: an historical perspective (A. Gens)

13h00-14h30: Lunch

14h30-15h30: Modelling the behaviour of expansive materials (A. Gens)

15h30-16h30: Constitutive modelling of compacted soils (E. Alonso)

16h30-16h50: Coffee break

16h50-17h50: Coupling mechanical response with strain dependent retention curve (J. Vaunat)

Tuesday 26th May 2015: Laboratory and field testing of unsaturated materials

9h00-10h20: Vapour and liquid phase transfer techniques used in unsaturated soil testing (E. Romero)

10h20-10h40: Coffee break

10h40-12h00: Water retention and transport properties of unsaturated materials (P. Delage)

12h00-13h00: Physical modelling and field monitoring (Y.-J. Cui)

13h00-14h30: Lunch

14h30-15h30: Exploring microstructural changes along HCM paths (E. Romero)

15h30-15h50: Coffee break

15h50-17h00: Mechanical response of unsaturated materials (P. Delage)

17h00-18h00: Visit to the Geotechnical Laboratory (several groups) (A. Lloret & E. Romero)

Wednesday 27th May 2015: Numerical modelling

09h00-09h45: Governing equations in multiphase materials (S. Olivella)

09h45-10h30: Implementation of coupled multi-phase/deformation problems (S. Olivella)

10h30-11h00: Coffee break

11h00-12h00: Implementation of constitutive laws for unsaturated soil (J. Vaunat)

12h00-13h00: Practical aspects of Finite element implementation for unsaturated soil problems (A. Rodriguez-Dono)

13h00-14h30: Lunch

Remember to bring your laptop to the Hands'on Session

14h30-18h00: Hands'on session: guided tutorial to the use of the Finite Element program Code_Bright (S. Olivella, J. Vaunat, A. Rodriguez-Dono, D. Ruiz, M. Mánica, A. di Mariano)

Thursday 28th May 2015: Some advanced topics and current issues

09h00-10h00: Rockfill behaviour (E. Alonso)

10h00-10h30: Coffee break

10h30-11h20: Thermodynamics bases of unsaturated soil behaviour (J.-M. Pereira)

11h20-12h10: Modelling of unsaturated soils with hypoplasticity (D. Mašín)

12h10-13h00: Assumptions and paradigms in modelling unsaturated soils (C. Jommi)

13h00-14h30: Lunch

14h30-15h15: Exploring HM behaviour with advanced experimental techniques (E. Romero)

15h15-16h00: Material Point Method in unsaturated materials (A. Yerro)

16h00-16h20: Coffee break

16h20-17h05: Application of unsaturated soil mechanics concepts to the modelling of soil freezing (A. Gens)

17h05-17h50: Soil-vegetation-atmosphere interactions (J. Vaunat)

Friday 29th May 2015: Practical applications and case studies

9h00-9h30: Sequential excavation in unsaturated soils (A. Topa)

9h30-10h00: Shallow landslides induced by rainfall: from laboratory to field case (F. Casini)

10h00-10h30: Water level drawdown in slopes and dams (E. Alonso)

10h30-11h00: Modelling the behaviour of Beliche dam (E. Alonso)

11h00-11h30: Coffee break

11h30-12h00: Foundations on collapsible soil: a case study (A. Gens)

12h00-12h30: Degradation of marls due to suction changes: Impact in slope excavation and embankment construction (R. Cardoso)

12h30-13h00: Engineered barriers (M. Sánchez)

13h00-14h30: Lunch

14h30-15h00: Cracking in drying soils (A. Ledesma)

15h00-15h30: Gas flow in soils and rocks (S. Olivella)

15h30-16h30: Invited lecture (C. Santamarina)

16h30: Closure of the course