

PROGRAM – GDR Hydrates Days 2025

Tuesday 25th November 2025

14h00-14h10 Introduction

14h10-15h50: Session 1 – “Astrophysics”

14h10-14h50 – Invited Roberto BINI “The role of pressure in the reactivity of Astrochemical Ices” (Florence, Italy)

14h50-15h10 – Élodie GLOESENER “Occupancy and Density of Mixed Clathrate Hydrates in Ocean Worlds: Applications to Europa, Titan and Enceladus” (Lille, France)

15h10-15h30 – Livia Eleonora BOVE “New high density hydrates under planetary conditions” (Paris, France)

15h30-15h50 – Yevgeniy KVIRING “Glycine behavior in a cometary ice matrix” (Dijon, France)

15h50-16h00 Flash presentations for poster

16h00-16h20 Coffee break + Poster discussion

16h20-18h20: Session 2 – “Geosciences”

16h20-17h00 – Invited Andreia PLAZA-FAVEROLA “Gas Hydrate Systems on Earth: Connecting Energy, Environment, and Geosciences” (Tromsø, Norway)

17h00-17h20 – Art-Clarie Constant AGNISSAN “Local Geochemical Dynamics of Shallow Hydrates Bearing sediments at Active Methane Seepages in the Western Black Sea (Off Romania)” (Plouzané, France)

17h20-17h40 – Olivia FANDINO “Mapping and Forecasting Methane Hydrate Systems in the Black Sea: Lessons to learn from the DOORS Project” (Plouzané, France)

17h40-18h00 – Sukru MEREY “Potential of Methane Hydrates Above the Conventional Reservoir in the Sakarya Gas Field, Türkiye” (Batman, Türkiye)

18h00-18h20 – Yohan LEE “Understanding Methane Hydrate Growth in Clay Sediments” (Talence, France)

18h20-19h30: Discussion / Free time

19h30: Dinner at IBIS Styles

~21h00: Loan RENAUD’s story about his Arctic adventure “Cap sur l’Arctique : 2 000 milles nautiques de recherche et d’aventure”

Wednesday 26th November 2025

9h00-10h40: Session 3 – “Molecular Sciences”

9h00-9h40 – Invited Thomas LOERTING “Amorphous Water Solutions and their Crystallization” (Innsbruck, Austria)

9h40-10h00 – Amin MOZHDEHEI “Formation and Thermodynamic Behavior of Water–THF Hydrates in Confined Mesoporous Media” (Rennes, France)

Journées du GDR2026 « Hydrates de Gaz »

November 25-27 2025, Besançon

CNRS – TotalEnergies – ENSTA – MINES ParisTech – BRGM – IFPEN – INRAE <http://hydrates.cnrs.fr>

10h00-10h20 – Yuhan HUANG “Nanoscale Generation of High Pressure by TERS toward Confined Hydrate Formation” (Talence, France)

10h20-10h40 – Dounya FRAH “Hydrogen storage in mixed hydrates in porous materials: effects of perchloric acid on hydrogen incorporation” (Rueil-Malmaison, France)

10h40-11h10 Coffee break + Poster discussion

11h10-12h30: Session 4 – “Molecular Sciences (continued)”

11h10-11h30 – Victoire MEKO FOTSO “DFT Investigation of Xenon Clathrate Hydrates: structural and thermal stability” (Besançon, France)

11h30-11h50 – Sophie ESPERT “Evidence of N₂ hydrate in a filled-ice phase at high pressure combining Raman spectroscopy and DFT simulation” (Paris, France)

11h50-12h10 – Maxime LEGRAND “Accelerating molecular properties description of gas hydrates using AI-powered multi-scale simulations” (Besançon, France)

12h10-12h30 – Romane DELOFFRE “Exploring CO₂ Hydrate Molecular Dynamics with Deep Neural Network Potentials and Density Functional Theory” (Toulouse, France)

12h30-14h30: Lunch at IBIS Styles

14h30-16h10: Session 5 - “Process Engineering”

14h30-15h10 – Invited Nicolas VON SOLMS “Gas Hydrates as Energy Storage Materials and Other Applications” (Lyngby, Denmark)

15h10-15h30 – Abdelhafid AIT BLAL “A mechanistic study of CO₂ gas hydrate formation in a mesoporous zeolite” (Caen, France)

15h30-15h50 – Stefan ARZBACHER “A Low-temperature Route to Hydrate-based Carbon Capture” (Dornbirn, Austria)

15h50-16h10 – Quang-Du LE “Investigation of the Stability and Selectivity in Carbon-Based Binary Mixtures in Pure Water Clathrates and Semi-Clathrate Hydrates: Insights from In-situ Raman Spectroscopy” (Lille, France)

16h10-16h40 Coffee break + Poster discussion

16h40-18h00: Session 6 – “Geosciences (continued)”

16h40-17h00 – Peyman DEGHANI “Influence of Injection Dynamics on Hydrate-Based CO₂ Storage in Unconsolidated Sandy Sediments” (Rueil-Malmaison, France)

17h00-17h20 – Marco TERZARIOL “Hydrate-Based CO₂ Plugging in Sandy Soils: Role of Injection Rate in Geo-Hydro-Mechanical Behavior” (Plouzané, France)

17h20-17h40 – Atanas VASILEV “Decoding Heat Flow Anomalies to Track Gas Hydrates: Danube Fan, Black Sea Case Study” (Varna, Bulgaria)

17h40-18h00 – Atousa HEIDARI “Formation Mechanisms and Thermodynamic Behavior of Complex Gas Hydrates in the Sea of Marmara via Experimental and Simulation Approaches” (Plouzané, France)

18h00-19h30: Discussion / Free time / Walk around Besançon

19h30: Dinner at IBIS Styles

Thursday 27th November 2025

9h00-10h40: Session 7 – “Molecular Sciences (continued)”

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9h00-9h20 – Vincent BALLENEGGER “Free energy difference and coexistence pressure between clathrate structures II and H in methane and argon hydrates using Lattice-Switch Monte Carlo” (Besançon, France)

9h20-9h40 – Tomasz POREBA “Hydrogen storage in ice matrices at high pressure and low temperature” (Paris, France)

9h40-10h00 – Maria RESCIGNO “Giant Splitting of the Hydrogen Rotational Eigenenergies in the C₂ Filled Ice” (Rome, Italy)

10h00-10h20 – Alasdair NICHOLLS “Hydrogen Bond Symmetrisation in High-Pressure Hydrogen-Hydrate” (Paris, France)

10h20-10h40 – Loan RENAUD “Dual quantum locking: Dynamic coupling of hydrogen and water sublattices in hydrogen filled ice” (Paris, France)

10h40-11h00 Coffee break + Poster discussion

11h00-12h00: Session 7 – “Process Engineering (continued)”

11h00-11h20 – Leandro SARAIVA VALIM “Comparative Assessment of Gas Hydrate Transportability at Different Scales” (Rio de Janeiro, Brasil)

11h20-11h40 – Inès ZAIR “Microfluidic study of CO₂ hydrate crystallization: influence of wettability” (Rueil-Malmaison, France)

11h40-12h00 – Peyman DEGHANI “CO₂ Hydrate Nucleation Study: A Novel High-Pressure Microfluidic System” (Rueil-Malmaison, France)

12h00-12h10: Concluding remarks

12h10-14h00: Lunch at IBIS Styles

END of the “GDR Hydrates” Days