

# AquaConSoil Programme 2021

## Tuesday



Time	Activity	Topic 1	Topic 2	Topic 3	Topic 4	CINEMA	NETWORK		
11:00 - 12:00	PLENARY <b>Opening Session</b>								
12:30 - 13:30	PLENARY Lunch session Success stories 1								
13:30 - 15:00		<b>1aSpS1</b> Special Session NICOLE session 1: Land Stewardship	<b>1c2</b> Session Resource quality in sustainable, circular agriculture	<b>2bSpS2</b> Special Session Sustainability assessment as a tool for more sustain- able and resilient remedia- tion of soils, groundwater, and sediments	<b>3cSpS2</b> Special Session Inspiration from Dutch soil by Lean Start-Up	<b>3c3</b> Session Upgrading polluted sites: tackling sites contaminated with pesticides	<b>4a1</b> Session Enhanced bioremediation	All day	All day
15:00 - 15:30	Young Professionals								
15:30 - 17:00		<b>1b1</b> Session sustainable water re-use in urban areas	<b>2aSpS1</b> Special Session Give Soils a Voice!	<b>2b2</b> Session Decision support tools for soil and groundwater	<b>3c1</b> Session Upgrading polluted sites: tackling sites with emergent & conventional contaminants	<b>4a4</b> Session PFAS: as an emerging issue	<b>4b3</b> Session Digital tools for site characterization and assessment	All day	All day

- Topic 1: Sustainable use and protection of soil-sediment-water systems
- Topic 2: Smart tools and methods to connect people, planet and profit
- Topic 3: Intetrated management of contaminated land
- Topic 4: Sustainable remediation technologies in context of EGD and energy transition

# Wednesday

11:00 - 12:00	<p>PLENARY</p> <p><b>Keynote</b> Towards sustainable use and management of soil, sediment and water resources</p>									
12:30 - 13:30	<p>PLENARY</p> <p><b>Lunch session</b> Success stories 2</p>									
13:30 - 15:00	<p><b>1aSpS2</b> Special Session Soil Mission Support: Co-creating the European Roadmap for Land and Soil Related Research and Innovation</p>		<p><b>1b2</b> Session Approaches to soil and sediment reclamation and reuse</p>	<p><b>2aSpS3</b> Special Session NICOLE session 2. Liability transfer</p>	<p><b>3c2</b> Session Upgrading polluted sites: tackling sites with complex mixtures and conventional contaminants</p>	<p><b>3a1</b> Session Dealing with multiple pathways and scales</p>	<p><b>4a3</b> Session PFAS: solutions for impacted waste water</p>	<p>CINEMA All day</p>	<p>NETWORK All day</p>	
15:00 - 15:30	<p>Coffee break</p>									
15:30 - 17:00	<p><b>1c1</b> Session Phytoremediation</p>		<p><b>1aSpS3</b> Special Session TerrAgenda: A Manifest for healthy soils in 2030!</p>	<p><b>3b1</b> Session Area-based risk approaches, uncertainties and scales of pollution pathways</p>	<p><b>3cSpS1</b> Special Session PFAS – Best practices on the interface between soil/sediments and excavated materials which are becoming waste</p>	<p><b>4a7</b> Session Mitigation migration risk</p>	<p><b>4a5</b> Session In Situ Source Zone Remediation</p>	<p>CINEMA All day</p>	<p>NETWORK All day</p>	



**15 June 2021**

11:00

**Opening session** - Huub Rijnaarts

With contributions from:

Cees Veerman - Chair Mission for Soil Health and Food

Natalia Rodriguez-Eugenio - GSP & Global assessment of soil pollution

Suzanne van der Meulen - Functional urban water quality

And a panel discussion with:

1 Wouter Gevaerts

2 Lenka Wimmerova

3 Dietmar Mueller-Grabherr

12:30

**Success stories | session 1**

1. Advanox: an efficient and modern method for groundwater treatment -
2. Application of Klozur® CR For the treatment of hydrocarbons, BTEX and MTBE in a former petrol station in Italy
3. Full scale pilot test of a new UV/H<sub>2</sub>O<sub>2</sub>-remediation technique "RemUVe®" for removal of chlorinated solvents and pesticides to reduced usage of GAC on remediation facilities
4. In-Situ Stabilization Carbon Dioxide Footprint Reduction using Klozur Persulfate

Chair: Huub Rijnaarts

Presenter 1: Clara Thege

Presenter 2: Alberto Leombruni

Presenter 3: Martin Bymose

Presenter 4: Brant Smith

13:30

**Session 1aSpS1 | Land Stewardship NICOLE**

Chairs: Hans Slenders & Lida Schewald

**Session 1c2 | Resource quality in sustainable, circular agriculture**

1. Better use of clay for sandy soils
2. SoSEAL seepage screens, a nature-based solution for protection of drought-sensitive natural areas
3. Agronomic and environmental effectiveness of nutrients recovered from a wastewater treatment plant in fertigated horticultural crops.
4. Human biomonitoring surveys on adult populations exposed to contaminated soils (Pb, Cd, As), focus on health risks due to urban food production.

Chair: Iwona Wagner

Presenter 1: Leon Claassen

Presenter 2: Frank Volkering

Presenter 3: Mar Carreras-Sempere

Presenter 4: Jérôme C.J. Petit

**Session 2bSpS2 Sustainability assessment as a tool for more sustainable and resilient remediation of soils, groundwater, and sediments.**

Chair: Jarno Laitinen

Presenters: Arianna Pantano, Richard Bewley, Mark Nielsen, Aldo Trezzi, Jarno Laitinen

**Session 3c3 | Upgrading polluted sites: tackling sites contaminated with pesticides**

1. Directional Groundwater Recirculation Combined with Oxidative Biodegradation for the Remediation of Groundwater Contamination with Benzothiazoles and Biocides
2. Remediation of trifluralin polluted soil by cold atmospheric plasma in a novel cylinder-to-cylindrical grid DBD reactor
3. Green remediation of pesticide-impacted soils during conversion of agricultural land to residential land use
4. Biodegradation study of bromoxynil in two German soils

Chair: Ilse van keer

Presenter 1: Jeroen Verhack

Presenter 2: Maria Hatzisymeon

Presenter 3: Alan Seech

Presenter 4: Mahsa Namini

**Session 3cSpS2 Inspiration from Dutch soil by Lean Start-Up**

Chair: Paul Oude Boerrigter

Supported by Arthur de Groof, Tessa Pancras, Fieke Mulders, Willem Hendriks, Elena Cano, Jesús Fernández, Javier Sancho, Jesús Gil Gustavo, Charles Pijls, Jan Jurjen Schiphuis, Edwin de Baet, Bjent van der Enden

**Session 4a1 | Enhanced bioremediation**

1. In-situ biostimulation of nitrate-reducing aromatic-hydrocarbon-degrading microbial communities
2. Improvement of bioaugmentation and biostimulation techniques for the biodegradation of hydrocarbons in contaminated soils
3. Advances in Enhanced Anaerobic Bioremediation of Recalcitrant Chemicals
4. DCE Stall – Causes and Cures.

Chair: Zhongbing Chen

Presenter 1: Johan van Leeuwen

Presenter 2: Sandra Curiel Alegre

Presenter 3: Jeff Roberts

Presenter 4: Robert Wagenveld

15:00

**Young Professionals**

Marissa Frambach  
Mérielle de Graaf

15:30

### **Session 1b1 | sustainable water re-use in urban areas**

1. AquaConnect
2. Developing Effective Waste and Wastewater Circularity in Smart Municipalities
3. Management approaches of nature-based solutions using soil to attenuate nutrients and contaminants of emerging concern
4. Integrated regional program for deep urban groundwater quality management in Jurubatuba, Sao Paulo, Brazil.

Chair: Tim Grotenhuis  
Presenter 1: Thomas Wagner  
Presenter 2: Lenka Wimmerova  
Presenter 3: Lucia Barbero  
Presenter 4: Olivier Maurer

### **Session 2aSpS1 | Give Soils a Voice! Incl. Engaging in alternative communication to approach land protection: examples of projects between artists and scientists**

Chair: Margot De Cleen  
Presenter 1: Héloïse Thouement  
Presenter 2: Co Molenaar, Supported by Sverre van Klaveren

### **Session 2b2 | Decision support tools for soil and groundwater**

1. Are we on the brink of a resurgence of decision support tools for brownfield redevelopment?
2. Tools for quantification of the duration and effect of pesticides to groundwater resources
3. Assessment tool for the metal pollution present in soil and groundwater in the Belgian Campine area
4. SANISOL: a web tool to provide recommendations for users of trace metal contaminated vegetable gardens in Wallonia (Belgium)

Chair: Sophie Moinier  
Presenter 1: Darren Beriro  
Presenter 2: Majken Frederiksen  
Presenter 3: Ilse van Keer  
Presenter 4: Benoit Pereira

### **Session 3c1 | Upgrading polluted sites: tackling sites with emergent & conventional contaminants (PFAS, Hg and As)**

1. Testing PFAS Immobilization
2. TCH removes PFAS from soil – but where does it go? Removal and fate of PFAS during thermal soil remediation
3. Remediation of persistent arsenic groundwater contamination in a fractured rock aquifer in a coastal area by using IEG-GCW® Groundwater Circulation
4. Progress in the management and securing of mercury-polluted sites

Chair: Rob Sweeney

Presenter 1: Thomas Bierbaum  
Presenter 2: Soren Eriksen  
Presenter 3: Marco Petrangeli Papini  
Presenter 4: Boris Devic Bassaget

#### **Session 4a4 | PFAS: as an emerging issue, session 2**

1. A study on PFAS in consumer products, recycling processes, dust and sludge
2. PFASs in Landfill Leachate and Wastewater – Prevalence, Context and Solutions
3. Precursors!
4. Supporting a Clean, Effective Transition to PFAS-Free Firefighting Foams

Chair: Marcelle vd Waals  
Presenter 1: Tessa Pancras  
Presenter 2: Jonathan Miles  
Presenter 3: Thomas Held  
Presenter 4: Jake Hurst

#### **Session 4b3 | Digital tools for site characterization and assessment**

1. The GroundWater Spatiotemporal Data Analysis Tool (GWSDAT): What are the latest developments?
2. Application of digital technologies for site walkovers
3. Applications of Machine Learning to release value from historical data
4. Camera surveillance for the “Smart Supervision”

Chair: Laurent Bakker  
Presenter 1: Luc Rock & Wayne Jones  
Presenter 2: Brent Brinkman  
Presenter 3: Shreyata Sohni  
Presenter 4: Jasper Schmeits

**16 June 2021**

11:00

**Plenary keynote “Towards Sustainable Use and Management of Soil, Sediment and Water Resources”**

Chair Huub: Rijnaarts

Keynote presenter: Frederic Coulon (Cranfield University)

With contributions from:

Presenter 1: Jenny Norrman – urban regeneration

Presenter 2: Nicole member – the business perspective

Presenter 3: Heloise Thouement – Young Professionals

12:30

**Success stories | session 2**

1. Sodium Persulfate with Integrated Activator Destroys >99% of Trichlorethylene in 5 Weeks at a Manufacturing Facility in The Netherlands

2. In Situ Thermal Remediation Lithological Efficiency: Application of Electrical Resistance Heating in Sandstone Bedrock

3. Low Carb ISCO Site Remediation using i-SAV© Technology

Chair: Huub Rijnaarts

Presenter 1: Mike Mueller

Presenter 2: Amy Wagner

Presenter 3: Uwe Dannwolf

13:30

**Session 1aSpS2 Soil Mission Support: Co-creating the European Roadmap for Land and Soil Related Research and Innovation**

Chair: Linda Maring

Presenter 1: Sophie Ittner

Presenter 2: Sandra Nauman

Presenter 3: Jos Brils

Presenter 4: Michael Löbmann

**Session 1b2 | Approaches to soil and sediment reclamation and reuse**

1. Pilottest PFAS treatment in discharge water of IJsseloog, one of the three state sludge depot in the Netherlands

2. Definition of geochemical background values over the Parisian Basin to promote the circular reuse of excavated soils: the GeoBaPa project

3. Minimizing sustainability impacts throughout dredging project – from decision making to stabilization

4. Sustainable sediment management in coastal infrastructures through the innovative ejectors plant technology

Chair: Joke van Wensem

Presenter 1: Wim Plaisier



Presenter 2: Samuel Coussy  
Presenter 3: Jarno Laitinen  
Presenter 4: Marco Pellegrini

### **Session 3a1 | Dealing with multiple pathways and scales**

1. Does unplanned water reuse for maize irrigation pose a threat?
2. From the pilot to the full-scale intervention: 3d dynamic model guiding the remediation strategy of a polluted industrial site
3. Leveraging PRISM® to Assess Contaminant Migration Pathways at a Complex Geologic Site, Washington DC
4. Contaminants of emerging concern reuse of sediment

Chair: Dominique Guyonnet  
Presenter 1: Ana de Santiago Martin  
Presenter 2: Paolo Ciampi  
Presenter 3: Ryan Samuels  
Presenter 4: Karen van Geert

### **Session 3c2 | Upgrading polluted sites: tackling sites with complex mixtures and conventional contaminants (HM, TPH, PAHs, Mineral oil)**

1. Planning for flexibility: a case study in creating robust remediation designs that can handle the realities onsite
2. From site closure to a clean platform ready for redevelopment: the successful and sustainable remediation of a large industrial site in eastern France
3. Bio-engineering solutions as catalyst for redevelopment of impacted sites
4. Substrate enhanced sorption of Pintsch gas tar PAHs in microcosms

Chair: Marc Viñas  
Presenter 1: Jack Shore  
Presenter 2: Thomas Perrier  
Presenter 3: Rogier de Waele  
Presenter 4: Alex Hockin

### **Session 4a3 | PFAS: solutions for impacted waste water, session 1**

1. Field pilot tests of a novel material for the in situ remediation of a PFAS contaminated groundwater aquifer
2. Electrosorption of perfluoroalkyl acids on activated carbon: accumulation of the compounds and on-site regeneration of activated carbon
3. Surface Active Foam Fractionation (SAFF): Effective PFAS removal from water using only air
4. Six Pilot-Scale Studies Evaluating the In-Situ Treatment of PFAS in Groundwater

Chair: Coen de Jong  
Presenter 1: Julian Bosch  
Presenter 2: Navid Saeidi  
Presenter 3: Helena Hinrichsen  
Presenter 4: Rick McGregor

### **Special Session 2aSpS3 | Liability transfer NICOLE session 2**

Chair 1: Lucia Buvé

Chair 2: Pascal Mallien  
Presenter 1 : Ewa Rutkowska-Subocz  
Presenter 2 : Carlos de Miguel Perales  
Presenter 3 : Francoise Laborousse  
Presenter 4 : Wilhelm Bergthaler

15:30

### **Session 1aSpS3 TerrAgenda: A Manifest for healthy soils in 2030!**

Chair: Margot de Cleen  
Presenter 1: Jan Willem Erisman  
Presenter2: Co Molenaar  
Supported by Sverre van Klaveren

### **Session 1c1 | Phytoremediation**

1. Feasibility testing and implementation of pilot experiments for phytoremediation within Life NARMENA.
2. Case study of land reclaim by phytoremediation: from TPH contamination to potential agricultural value
3. The Power of Constructed Wetlands to clean water from nutrients and PFAS
4. Recovery of rare earth elements from mine tailings: using heraccumulating plant ash to produce a high-purity compound.

Chair: Lenka Wimmerova  
Presenter 1: Mario Clemmens  
Presenter 2: Sébastien Kaskassian  
Presenter 3: Marco van den brand  
Presenter 4: Jally Bastien

### **Session 3b1 | Area-based risk approaches, uncertainties and scales of pollution pathways**

1. Evaluation of soil health in response to emerging contaminants exposure
2. To remediate or not: ecosystem responses in a heavy-metal contaminated natural area
3. Detailed Assessment of Risks to Human Health from Arsenic at a former Colliery and Coking Works Site
4. Study on the sorption of Oxygenated Polycyclic Aromatic Compounds onto soil: towards a better human health risk-oriented remediation of PAH-contaminated sites

Chair: Dietmar Mueller-Grabherr  
Presenter 1: Federica Persico  
Presenter 2: Ingrid Rijk  
Presenter 3: Simon Hay & Laura Garland  
Presenter 4: Julien Michel

### **Session 3cSpS1 PFAS – Best practices on the interface between soil/sediments and excavated materials which are becoming waste.**

Chair: Joerg Frauenstein

Presenters: Carmen Casado, Philippe Goossens, Joerg Frauenstein, Dietmar Müller-Grabherr

### **Session 4a5 | In Situ Source Zone Remediation, Session 1**

1. “Zero energy soil remediation: recovery of free product using solar and wind energy”
2. Electrokinetic-enhanced bioremediation: applications in physically heterogeneous settings
3. Electrokinetic bioremediation of chlorinated solvents in groundwater: novel insights from multiphysics process-based models and real-time machine learning simulations
4. Assessment of the role of densification on displacement of DNAPL in highly permeable porous media using polymer solution

Chair: Fieke Mulders

Presenter 1: Paul Verhaagen

Presenter 2: Richard Gill

Presenter 3: Riccardo Sprocati

Presenter 4: Amir Hossein Moahamadi Alamooti

### **Session 4a7 | Mitigation migration risk**

1. Subaqueous sediment remediation with a permeable active geocomposite in Sydney/Australia
2. Reactive mat on river bed passively catches groundwater contaminants
3. Sheen Management via Oleophilic Bio-Barrier (OBB) – Technology Overview and Case Studies
4. Contaminated Soil Capping – Risk-Based Approach for the Redevelopment of the Pharmaceutical Site under the Specific Site Conditions: Case study

Chair: Kirsten Rukke

Presenter 1: Stefan Niewerth

Presenter 2: Tobias Praamstra

Presenter 3: Shannon Dunn

Presenter 4: Petr Kozubek

**17 June 2021**

11:00

**Session 2aSpS2 An 'alternative' soil strategy by young professionals.**

Chair: Sven Verweij

Presenter 1 : Sven Verweij

Presenter 2 : Marissa Frambach

Presenter 3 : Sverre van Klaveren

Presenter 4 : Johan Dankert

**Session 2b1 | Integrating digital solutions for sustainable land management**

1. BIM for Environment – towards a site digital twin
2. Give the people what they want: Insights into stakeholder needs and opportunities for digital decision support for brownfield redevelopment.
3. Example of a cloud solution for seamless follow up of a sustainable remediation at an oil terminal site
4. Including the subsurface in spatial planning

Chair: Thomas Track

Presenter 1: Nicolas Soenens

Presenter 2: Ellis Hammond

Presenter 3: Danny Schanze

Presenter 4: Henriette Keijzer

**Session 3aSpS2 Natural Source Zone Depletion (NSZD): From principles to effective Implementation**

Chair: Jonathan Smith

Presenters: Jonathan Smith, Michael Rivett, Sanjay Garg, Charles Newell, George DeVaul, Greg Davis

**Session 3c4 | Tackling sites impacted by groundwater contamination**

1. 1,4-Dioxane - A contaminant of emerging concern at contaminated sites in Sweden?
2. Safeguarding drinking water resources: engineering niches of microbial activity for organic micropollutant biodegradation
3. Green solutions for treating nitrate and micropollutants in groundwater to meet drinking standards
4. Biological degradation of high concentrations of 2,4- and 2,6-DNT

Chair: Marco Petrangeli Papini

Presenter 1: Michael Pettersson

Presenter 2: Nora Sutton

Presenter 3: Carmen Biel

Presenter 4: John Dijk

**Session 4a6 | In Situ Source Zone Remediation, surfactant & ISCO focus, Session 2**

1. Influence of surfactant on dnapl mobilization
2. Surfactant Enhanced Extraction of NAPL, Globule, and Sorbed Phase Contamination Resolving Limitations To Contaminant Availability

3. Novel iron oxide nanoparticles for in situ and ex situ treatment of persistent pollutants
4. The EU Life "Surfing" Project: Research on Surfactant-Supported In-Situ Oxidation for the Remediation of DNAPL-Groundwater contaminations

Chair: Frank Volkering

Presenter 1: Rogier de Waele

Presenter 2: George Ivey

Presenter 3: Sadjad Mohammadian

Presenter 4: Benjamin Herzog

### **Session 4b2 | Transport and biodegradation of organic contaminants**

1. Characterization and carbon and chlorine isotope fractionation pattern of a novel trichloromethane respiring bacterium belonging to the genus Dehalobacter
2. Longtime monitoring of biogeochemical changes in situ remediation of chlorinated solvents
3. Estimation of Sorbed-Phase Biodegradation Rate in Activated Carbon Barriers Using Microbial Diagnostics, CSIA and In Situ Microcosms
4. What Your Bugs are Trying to Tell You- Illuminating Subsurface Conditions by using Microbial Communities as Biosensors

Chair: Renato Baciocchi

Presenter 1: Jesica Maiara Soder Walz

Presenter 2: Sofia Akesson

Presenter 3: Jeremy Berinstingl

Presenter 4: Philip Dennis

13:30

### **Session 2bSpS1 Sustainable Remediation: new practical guidance and tools**

1. How to approach a sustainability assessment for achieving sustainable remediation
2. What are the updated indicators/criteria and how to use them in a sustainability assessment mapped against the United Nations Sustainable Development Goals
3. Updated Sustainable Management Practices and demonstration of how to use the associated spreadsheet and the presentation of a case study
4. Discussion

Chair Nicola Harries

Presenter 1: Alan Thomas

Presenter 2: Vivien Dent

Presenter 3: Paul Bardos

Presenter 4: Chris Taylor

### **Session 3aSpS1 Industry perspectives on incorporating sustainability into portfolio-scale management of contaminated land: A panel discussion**

Chair: Ricard Gill

Presenter 1: Ann Barker

Presenter 2: Paul Burden

Presenter 3: Duncan Spencer

Presenter 4: Jonathan Smith

Presenter 5: Frank Wigley

Presenter 6: Frank Evans

### **Session 4a2 | Zero Valent Iron (ZVI)**

1. Implementation and Performance of Injected ZVI PRB to Control Chlorinated Hydrocarbon Plume Migration in Denmark
2. Sulfidation disproportionately influences the removal of chlorinated ethenes by zero-valent iron nanoparticles
3. Innovative ZVI application for sustainable remediation of chlorinated solvent plumes
4. Evaluation of 5 years operation of a funnel and ZVI gate system for a containment of a VOC's and Chromium VI contamination

Chair: Nina Tuxen

Presenter 1: Andrzej Przepiora

Presenter 2: Miroslav Brumovsky

Presenter 3: Kirsten Rügge

Presenter 4: Julien Matha

### **Session 4aSpS1 NICOLE session 3. PFAS and other emerging contaminants: status and advances made on monitoring, detection and remediation**

Chair 1: Fred Coulon

Chair 2: Tomás Albergaria

### **Session 4b1 Innovative approaches for assessing the evolution of contamination**

1. Application of natural source zone depletion (nszd) to a site impacted by petroleum hydrocarbons using multiple lines of evidence
2. New experimentations about the effect of groundwater fluctuations on the multiphase mobilization of LNAPL contaminants: assessment and monitoring.
3. Demonstration of an Innovative Solution For Groundwater Characterization And Monitoring on Industrial Site.
4. Natural Source Zone Depletion: The Basis for a New Approach to Manage LNAPL Contaminated Sites

Chair: Hilde Passier

Presenter 1: Iason Verginelli

Presenter 2: Amélie Cavelan

Presenter 3: Béatrice Ducastel

Presenter 4: Julio Zimbron

### **Session 4b4 | Modelling and Monitoring for the management of contaminated sites**

1. Validation of Combined Geophysical and Geochemical Screening Tools to Locate and Delineate Subsoil DNAPL Hotspots in Multi-Layer Soil Profiles.
2. Modelling the thermal desorption soil treatment
3. Advantages of Passive Sampling as a Decision-Making Tool and its Application to Contaminated Groundwater Upwelling
3. Evaluation of High Resolution Methods for VOC Contaminant and Flux Distributions in Igneous / Metamorphic Rock Settings

Chair: Wouter Gevaerts

Presenter 1: Lucía Arévalo-Lomas

Presenter 2: Aurélien Vandekerckhove  
Presenter 3: Brent Pautler  
Presenter 4: Lars Davidsson

15:30

**Closing Session Plenary presentation, future outlook**

Chair Huub Rijnaarts

Photo contest JURY: Wout Berger, Evert van de Worp, Marissa Frambach, Willem Hendriks

Presentation:  
Martin Doeswijk  
Margot de Cleen

The closing session is from 15:30 – 17:00 hours.