



Variable Charge Soil Conference

4 & 5 March 2026

Newcastle Exhibition & Convention Centre
(NEX), Newcastle, NSW

2026variablechargesoilconference.com

Brought to you by 

Pre-Conference Workshop and Site Visit

<p>The Pre-Conference Workshop is open to registered conference delegates who wish to participate and complete the required workshop registration. In addition, a number of participants with specific relevant backgrounds have been formally invited to attend.</p>	
9:00am	<p>Climate Change and Food Security Workshop</p>
	<p>Monday 2 March, 2026</p> <p>crcCARE , ATC Building Callaghan , NSW, 2308</p>
9:00am	<p>Tyrell's Wines – Hunter Valley Site Visit</p>
	<p>3 March, 2026</p> <p>The Site trip will start at 9:00 by a Chartered Bus from the venue. A light refreshment will be provided by crcCARE</p>

CONFERENCE PROGRAM 2026

Tuesday 3 March 2026

15:00 - 19:00	Registration Open
15:00 - 19:00	Speaker Support
17.30 - 18.30	<p>Welcome Reception</p> <p>Newcastle Exhibition & Convention Centre (NEX)</p>

Wednesday 4 March 2026

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7:30	Registration Open
7.30 - 11.30	Speaker Support
8.30 - 8.45	Welcome to Country and Welcome by Distinguished Laureate Prof Ravi Naidu
8.45 - 9.00	OCP Address by MERIEM EL ASRAOUI , Chief Global Affairs Officer, OCP Group
9.00 - 9.15	Official Conference Opening By The Honourable Penelope Wensley AC
9.15 - 10.00	<p>PLENARY 1: What Temperate Agriculture Doesn't Teach Us: The Critical Role of Variable Charge Soils in the Tropics</p> <p>Dr Leonardus Vergutz, Scientific Office of OCP Nutricrops</p>
	<i>Chair: Distinguished Laureate Prof Ravi Naidu</i>
10.00 - 10.30	<p>Morning tea - to be served in Foyer</p>
	<p>SESSION 1: Pedogenesis, Chemistry and Mineralogy</p>
	<i>Chairs: Sergejus Ustinov and Dr Yanju Liu</i>
10.30 - 11.00	<p>KEYNOTE: Chemistry and Mineralogy of Variable Charge Soils: Foundations for Sustainable Land Use and Environmental Stewardship.</p> <p>Dr Ndzana Georges Martial, University of Dschang, Africa</p>
11.00 - 11.30	<p>KEYNOTE: Pedogenesis, Classification, and Global Distribution of Variable Charge Soils</p> <p>Emeritus Prof Zueng-sang Chen, Department Of Agricultural Chemistry, National Taiwan University, Taiwan</p>
11.30 - 11.45	<p>Dynamic Aqueous Redox - Monitoring Methods and Implications for Variable Charge Soil</p> <p>Scott Warner, BBJ Group, LLC, USA</p>
11.45 - 12.00	<p>The Brazilian Soil Science Society and the Advancing Knowledge on Variable Charge Soils</p> <p>Maria Eugenia Ortiz Escobar, Department of Soil Sciences, Universidade Federal do Ceará, Brazil</p>
12.00 - 12.15	<p>Accredited Testing Laboratories of Scientific Research Organization of Samoa (SROS): Analytical Services on Soil Samples</p> <p>Nofoaga Lisale, Scientific Research Organization of Samoa, Samoa</p>
12.15 - 12.30	<p>Phosphorus Dynamics in Humid Tropical Andisols (Hydrandepts): Implications for Soil Management in Papua New Guinea</p> <p>Hefung Hati, University Of Goroka, Papua New Guinea</p>
12.30 - 12.45	<p>Factors affecting dissolved inorganic carbon concentration in the subsoil of an allophanic Andosol</p> <p>Dr Sadao Educhi, Institute for Agro-Environmental Sciences, NARO, Japan</p>
12.45 - 1.30	<p>Lunch and Poster Viewing</p>

Wednesday 4 March 2026 Continued

Wednesday 4 March 2026

1.30 - 2.15	<p>PLENARY 2 (VIRTUAL): Soil, Strategic Adaptation and SDGs: The Science-Humanity Interface Prof Steven Ratuva - Pro-Vice Chancellor Pacific and Director of the Macmillan Brown Centre for Pacific Studies at the University of Canterbury</p> <p><i>Chair: Distinguished Laureate Prof Ravi Naidu</i></p>
	<p>SESSION 2: Nutrient Interactions in variable charge soils</p> <p><i>Chairs: Scott Warner and Kamrun Naha Mousomi</i></p>
2.15 - 2.45	<p>KEYNOTE: Synergistic nutrient dynamics and agronomic strategies in variable charge soils Prof Richard Haynes, School of Agriculture and Food Sustainability, QLD, Australia</p>
2.45 - 3.15	<p>KEYNOTE: Variable Charge, Cations and Carbpn Dioxide Removal During Soil Rejuvenation Prof Paul Nelson, James Cook University, QLD, Australia</p>
3.15 - 3.30	<p>Phosphorus Retention in Variable Charge Soils: Implications for Taro Productivity in Fiji Rohit Lal, The Pacific Community (SPC), Fiji</p>
3.30 - 3.45	<p>Afternoon Tea and Poster Viewing</p>
	<p>SESSION 3: Contaminant Interactions and Risk Management</p> <p><i>Chairs: Dr Nilo Karimian and A/Prof Mohammad Mahmudur Rahman</i></p>
3.45 - 4.15	<p>KEYNOTE: Navigating Chemical Fate in Variable Charge Soils: Interactions, Mobility, and Risk Management in a Changing Environment. Distinguished Laureate Professor Ravi Naidu, crcCARE, NSW, Australia</p>
4.15 - 4.30	<p>Speciation and Bioavailability of Metals and Metalloids in Mixed Waste Organic Output (MWOO) and MWOO Amended Soils Dr Sara Bayat, University of New Enlgand, NSW, Australia</p>
4.30 - 4.45	<p>(VIRTUAL) Developing a Restoration Model for Lead Mining Contaminated Soils in Zambia: Would Zambian Contaminated sites provide a framework for restoration of Lead Contaminated Sites in Sub Saharan Africa Prof Stephen Syampungani, Copperbelt University, Zambia</p>
4.45 - 5.00	<p>(VIRTUAL) Global Prediction of Multi-Metal Soil Contamination Risk Using Explainable and Physics-Guided Machine Learning: Insights from Spatial Hotspots, Nonlinear Controls, and Federated Learning Limitations in Variable Charge Soils Dr Asadi Srinivasulu, crcCARE, University of Newcastle, NSW, Australia</p>
5.00 - 5.15	<p>Role of Organic Matter on Surface Charge and Adsorption of PFOS in Soils Dr Yanju Liu, crcCARE, University of Newcastle, NSW, Australia</p>
5.15 - 5.30	<p>Charge Variability of Soils Influencing the Sorption Process of Glyphosate Dr Md Nuruzzaman, crcCARE, NSW, Australia</p>
5.30 - 5.45	<p>Heavy Metal (PB) Accumulation in Metallophytes as Influenced by the Variations in Rhizospheric and Non-Rhizospheric Soils Physico-Chemical Characteristics Prof Sifau Adejumo, University of Ibadan, Nigeria</p>
5.45	<p>Close</p>
18.45 – late	<p>Conference Dinner Scratchley's on the Wharf Restaurant 200 Wharf Road, Newcastle</p>

Thursday 5 March 2026

Thursday 5 March 2026

7:30	Registration
7.30 - 11.30	Speaker Support
8.20 - 8.30	Welcome Day 2
8.30 - 9.15	PLENARY 3: Pacific Food Systems: Is Interconnectedness of People, Land, Water, and Culture Siosua Moala Halavatau, Pacific Soil Partnership (PSP), Tonga
	<i>Chair: Distinguished Laureate Prof Ravi Naidu</i>
	SESSION 4: Agronomic Practices and Nutrient Management: Soils with variable charge: agronomic and fertility aspects
	<i>Chairs: A/Prof Vanessa Wong and Siosua Moala Halavatau</i>
9.15 - 9.45	KEYNOTE: AI Driven Hypotheses for Advancing Carbon Stabilisation in Variable Charge Tropical Soil Prof Budiman Minasy, University of Sydney, NSW, Australia
9.45 - 10.15	KEYNOTE: Minerals and Management: Novel Insights Into Variable Charge Soil Organic Matter Fractions Across Pacific Island Landscape Tanner Beckstorn, University of Hawai'i at Mānoa, USA
10.15 - 10.45	Morning tea and Poster Viewing
10.45 - 11.15	KEYNOTE: Understanding Brazilian Soils With Variable Charge: History and Development of Sustainable Technologies to Ensure Food Security Prof Luiz Roberto Guimarães Guilherme, Departamento de Ciência do Solo, Escola de Ciências Agrárias, UFLA - DCS/ESAL/UFLA, Brazil
11.15 - 11.30	Safeguarding Variable Charge Soils in West Africa: Addressing Pesticide Pollution Through Management, Monitoring and Capacity Building Sergejus Ustinov, Food and Agriculture Organisation of the United Nations, Italy
11.30 - 11.45	(VIRTUAL) Spatial Distribution and Stewardship-Oriented Management of Phosphorus in Long-Term Phosphate-Fertilized Soils of Bangladesh Muhammad Sajidur Rahman, Bangladesh Rice Research Institute, Bangladesh
11.45 - 12.00	(VIRTUAL) Soil Charge Variability and Agricultural Fertility Responses in a Tropical Environment: The Case of Guinea-Bissau William Bessonsate Betoque, General Directorate of Engineering and Rural Development (DGDR), Guinea-Bissau
	SESSION 5: Climate Change and Ecosystem Sustainability
	<i>Chairs: Emeritus Prof Zueng-sang Chen and Dr Md Nuruzzaman</i>
12.00 - 12.30	KEYNOTE: An European perspective of Sustainable Soil Management When Dealing with Variable Charge Soils Dr Pandi Zdruli, CIHEAM , Mediterranean Agronomic Institute of Bari, Italy
12.30 - 12.45	(VIRTUAL) Status of Environmental Contamination in Nigeria Prof Sifau Adejumo, University of Ibadan, Nigeria
12.45 - 1.30	Lunch and Poster Viewing
	SESSION 6: Dynamic Nature of Variable Charge Soils and Ecosystem Impacts
	<i>Chairs: Tanner Beckstorn and Dr Ndzana Georges Martial</i>
1.30 - 2.00	KEYNOTE: Dynamic nature of variable charge soils as related to ions adsorption and nutrients cycling Prof Renkou Xu, Chinese Academy of Sciences, China
2.00 - 2.15	Integrating Soil Productivity, Nutrient Balance, 4R Stewardship, and Critical Zone Sustainability to Support Optimal Crop Production in Tamil Nadu, India Dr A Bharani, Tamil Nadu Agricultural University, India
2.15 - 2.45	KEYNOTE (VIRTUAL): Key Indicator Tools For Early Warning Shallow Slope Failure Using Soil Chemical Properties Signatures And Soil Chromaticity Prof Rashidi Othman, International Islamic University Malaysia, Malaysia
	SESSION 7: (Special Session): Analytical Methods
	<i>Chairs: Paul Nelson and Prof Renkou Xu</i>
2.45 - 3.15	KEYNOTE: Analytical Techniques and Challenges in Variable Charge Soil Characterisation Dr Md Rashidul Islam, crcCARE, University of Newcastle, NSW, Australia
3.15 - 3.45	KEYNOTE: Synchrotron Insights into Redox-Driven Fe-Mn Mineral Transformations and Trace Element Mobility in Variable-Charge Soils Dr Nilo Karimian, CSIRO Mineral Resources, VIC, Australia
3.45 - 4.00	Data Fusion of Low-Cost Proximal Sensors for the Prediction of Organic Carbon in Ultisols and Oxisols: NixPro Color Sensor and KT10 K Mete Prof Zeng-Yei Hseu, National Taiwan University, Taiwan
4.00 - 4.15	Impact of Variable-Charge Soils on the Analysis of Pesticide Residues in Soil Nipuni Welivitiya, University of Newcastle, NSW, Australia
4.15 - 4.45	Afternoon Tea and Poster Viewing
4.45 - 5.15	PANEL DISCUSSION: From Science to Policy and Practice in Developing Countries with Variable Charge Soils <i>Moderators:</i> Mahendra Kumar and Sergejus Ustinov <i>Panel:</i> Leonardus Vergütz, Siva Halavatau, Sam Corrick, Georges Ndzana and Richard Bell
5.15 - 5.30	Closing

Post Conference Tour

9:00am - 12:00pm	crcCARE Facilities/Lab Tour
	Friday 6 March, 2026
	crcCARE , ATC Building Callaghan , NSW, 2308

Poster Presentations

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POSTER 1	Unlocking Acid Soils: How Increasing pH Decreases Potassium Losses in Sandy Soils With Variable Charge Dr Fariya Abubakuri, Murdoch University, WA, Australia
POSTER 2	Nutrient-Trace Element Interactions in Agricultural Soils of Bangladesh: Implications for Soil Fertility, 4R Nutrient Stewardship and Environmental Risk Fatima Farhana, The University of Newcastle, NSW, Australia
POSTER 3	Soil Controls on Legacy Cadmium Bioavailability in Long-Term Phosphate-Fertilised Systems: A 4R Nutrient Stewardship Perspective Kamrun Nahar Mousomi, The University of Newcastle, NSW, Australia
POSTER 4	The Influence of Soil Charge Variability on Drought-Prone Soils Saifullah Nasif, The University of Newcastle, NSW, Australia
POSTER 5	Environmental Drivers of Humus Form Diversity in the Hyrcanian Forests of Northern Iran Akram Haghghat Doust, The University of Newcastle, NSW, Australia
POSTER 6	Refining Benzo(a)pyrene Risk Assessment in Urban Variable Charge Fill Soils: A Multiple Lines of Evidence Approach Brett Enman, Earthwise Environmental, NSW, Australia
POSTER 7	Sources, Speciation and Environmental Behaviour of PFAS in Variable-Charge Soils Dr Roheela Yasmeen, The University of Newcastle, NSW, Australia
POSTER 8	Soil Surface Charge Variation in Agricultural Soils: Effect of Biochar Application in Different Layers Dr Santosh Kumar Paul, The University of Newcastle, NSW, Australia
POSTER 9	Soil Surface Charge Dynamics Under PFAS Contamination: Interactive Effects of Biochar and Organic Amendment Dr Chuks Kenneth Odoh, Global Centre For Environmental Remediation (GCER), University of Newcastle