Science of the Total Environment is an international multi-disciplinary journal for publication of novel, hypothesis-driven and high-impact research on the total environment, which interfaces the atmosphere, lithosphere, hydrosphere, biosphere, and anthroposphere.

STOTEN’s Aims & Scope has been updated - we invite contributions of original and high quality interdisciplinary environmental research papers of broad impact. Studies significantly advancing fundamental understanding and that focus on the interconnection of multiple spheres will be given primary consideration. Field studies have preference, while papers describing laboratory experiments must demonstrate significant advances in methodology or mechanistic understanding with a clear connection to the environment. Descriptive, repetitive, incremental or regional-scale studies with limited novelty will not be considered.

1) Subject areas may include, but are not limited to:
- Air quality, atmospheric conditions, and new understanding of their role in adverse health or environmental outcomes
- Atmospheric biogeochemistry
- Ecosystem services and life cycle assessment
- Ecotoxicology and risk assessment
- Eco-hydrology
- Wildlife and contaminants
- Environmental impacts of climate change, agriculture, forestry, and land uses
- Environmental impacts of waste or wastewater treatment
- Drinking water contaminants and health implications
- Environmental remediation of soil and groundwater
- Global change-induced extreme events and environmental impacts
- Groundwater hydrogeochemistry and modeling
- Nanomaterials, microplastics, and other emerging contaminants
- Novel contaminant (bio)monitoring and risk assessment approaches
- Remote sensing and big data applications in multiple spheres
- Stress ecology in marine, freshwater, and terrestrial ecosystems
- Trace metals and organics in biogeochemical cycles
- Water quality and security
- Critical reviews or Discussion on current or emerging topics
• Fast-track submissions (less than 2 weeks): Ground-breaking discoveries with immediate impact

2) Types of submissions not to be considered:
• Papers not contributing significant new knowledge to the field of study
• Disciplinary studies with limited environmental relevance
• Local or regional scale case studies lacking international relevance
• Soil or plant science studies without environmental implications
• Laboratory batch experiments without an application component, e.g., batch sorption experiments, preparation, and evaluation of sorbents or catalysts for contaminant removal
• Manuscripts that are primarily data reports without a substantial hypothesis, e.g., monitoring of common contaminants
• Modelling studies without calibration and data validation
• Papers of social science in nature on environmental or resource economics, policy and management
• Toxicology and ecotoxicology studies testing single chemicals in bench-scale assays
• Human health studies that do not provide significant additional understanding of air pollution induced health outcomes
• Method development papers on common contaminants
• Bibliometric analysis-based papers

AUDIENCE

Environmental Scientists, Environmental Toxicologists, Ecologists, Chemical/Environmental Engineers, Environmental Health Scientists and Epidemiologists, Risk Scientists, Environmental Science Managers and Administrators.

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Environmental analysis, Water and soil quality, Organic mass spectrometry, Emerging organic contaminants, Nanomaterials, Biosensors for, Analysis, Fate and Risk of Emerging Pollutants such as Pharmaceuticals and Nanomaterials in the Environment Water Pollution Control and Protection Bridging analytical chemistry with ecotoxicology- toxicity identification, Evaluation techniques used, GC and LC tandem MS, biosensors, sample preparation, automated on-line techniques for water analysis environmental samples (water, including marine waters, sediments soils, biota samples)
Jay Gan, University of California Riverside, Riverside, California, United States of America
Environmental chemistry and toxicology of classic and emerging contaminants, Transformation, transport, plant uptake and risk mitigation of organic chemicals in the environment, Bioavailability of hydrophobic organic contaminants, Novel sampling and measurement methods and applications in risk assessment, Method development for trace contaminant analysis

**Philip Hopke**, University of Rochester, Rochester, New York, United States of America
Characterization of source/receptor relationships for ambient air pollutants, Multivariate statistical methods for data analysis, Chemical characterization of ambient aerosol samples, Emissions and properties of solid biomass combustion systems, Experimental studies of homogeneous, heterogeneous, and ion-induced nucleation, Indoor air quality, Exposure and risk assessment

**Special Issues Editor**

**Elena Paoletti**, Research Institute on Terrestrial Ecosystems National Research Council Florence Branch, , Italy
Plant health, Plant ecophysiology, Forests, Climate stressors, Air pollution impacts on terrestrial ecosystems, BVOC, Ground-level ozone

**Paola Verlicchi**, University of Ferrara, Ferrara, Italy
Water treatment, Wastewater treatments, Reuse of reclaimed water, Occurrence and removal of pharmaceuticals from (waste)water, Hospital effluent management and treatment, Petrochemical wastewater treatment, Environmental risk assessment

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Harmful algae, microbiology, protistology, Medicine, Toxicology

**Julian Blasco**, Institute of Marine Science of Andalucia, Puerto Real, Spain
Marine ecotoxicology, trace metal biogeochemistry, marine pollution, nanotoxicity, pharmaceuticals, emerging pollutants

**Baoliang Chen**, Zhejiang University, Hangzhou, China
Soil pollution control and remediation; Traditional and novel functional materials and environmental applications (biochar, graphene, biosorbent, and organo-clay); Sorption and reactions of organic and inorganic contaminants with natural and synthesised media; Novel membrane and pollutant abatement

**Jianmin Chen**, Fudan University Department of Environmental Science and Engineering, Shanghai, China
Gaseous and particulate air monitoring and chemistry (particularly urban), Secondary aerosol, Haze formation and fog chemistry, Human toxicity of atmospheric particulates, Aerosols and climate impacts

**Frederic Coulon**, Cranfield University, Cranfield, Bedfordshire, United Kingdom
Environmental Pollution and Remediation, Water-Soil-Waste System Engineering and Modelling, Risk Management, Environmental Biotechnology, Analytical chemistry, Environmental Sciences & Ecology, Polar environments, Bioaerosols, Hazardous waste management

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Human exposure; Exposure assessment; Human health effects; Biomarkers; Food safety; Biomonitoring; Indoor pollution; Emerging contaminants; Legacy contaminants; Wastewater epidemiology

**Martin Drews**, Technical University of Denmark Department of Technology Management and Economics, Kongens Lyngby, Denmark
Climate modelling, regional climate, hydrological and hydrodynamic modelling, climate and weather extremes, statistical methods, machine learning, remote sensing, water-energy-food nexus, decision-making frameworks, risk assessment, climate change adaptation, emergency preparedness, climate services for insurance, agriculture, energy, water and health sectors, marine, coastal, and urban environments, developing countries

**Kuishuang Feng**, University of Maryland at College Park, Department of Geographical Sciences, College Park, Maryland, United States of America
Carbon Accounting, Climate Mitigation, Sustainable Consumption and Production, Environmental Input-output Analysis, Virtual Water Flow Analysis

**Xinbin Feng**, Institute of Geochemistry Chinese Academy of Sciences, Guiyang, China
Mercury biogeochemical cycling in the environment and its health impact, Mercury stable isotope geochemistry and remediation of mercury contaminated lands, Cd, Pb, As and Sb biogeochemical cycling in the environment

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Soil microbiology, Fecal pollution of surface water, Biodegradation and bioavailability of organic pollutants, Pesticides, Plant-soil-microbial interaction

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Groundwater geology; Groundwater geochemistry; Surface water chemistry; Water quality; Water pollution; Water management; Water planning

Pingqing Fu, Tianjin University, Tianjin, China
Organic aerosols; Atmospheric chemistry; Isotopes of atmospheric aerosols; Fog water; Ice-core organics; Dissolved organic matter; Biomarkers

Ashantha Goonetilleke, Queensland University of Technology, Brisbane, Queensland, Australia

Mae Sexauer Gustin, University of Nevada Reno, Reno, Nevada, United States of America
Biogeochemical cycling of mercury, metals, and isotopes, Air pollution

Henner Hollert, Goethe University Frankfurt Faculty 15 Bio Sciences, Frankfurt, Germany
Bioanalytical environmental toxicology; Aquatic toxicology; Triad (Weight of evidence) approaches; Effect directed analysis; Sediments; In-situ investigations and monitoring; In-vitro bioassays; Waste- and ground water investigations (advanced wastewater treatment); Ecology

Deyi Hou, Tsinghua University, Beijing, China
Sustainability assessment; Life cycle assessment; Environmental footprint analysis; Risk management; Contaminated soil and groundwater remediation; Heavy metal contamination; Biocar production and application; Green synthesis of environmental functional materials; Fate and transport of volatile organic compounds in porous media

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Exposure assessment; Environmental epidemiology; Health intervention

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Air pollution, Meteorology, Environmental health, Climate change, Particulates, Ozone, Bioaerosols, Dust transportation, Vehicle emissions, Noise

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Environmental microbiology, environmental pollution, antibiotic resistance bacteria, resistance genes, biogas production

Dimitra Lambropoulou, Aristotle University of Thessaloniki, Thessaloniki, Greece
Emerging Contaminants, Organic Pollutants, Transformation Products, Environmental fate, Sample preparation and analysis, Advanced mass spectrometry techniques, Environmental monitoring and risk assessment, water quality, Treatment processes for water and wastewaters

Christian Herrera Lameli, Bernardo O'Higgins University, Santiago, Chile
Hydrogeology; Groundwater geochemistry; Isotope hydrogeology; Surface water – groundwater interactions; Remote sensing in groundwater; Climate change

Jurgen Mahlknecht, Monterrey Institute of Technology and Higher Education, Monterrey, Mexico
Groundwater chemistry, Isotope hydrology, Groundwater flow, Groundwater management, Groundwater pollution, Groundwater planning, Urban groundwater, Surface water chemistry, Groundwater policy

Rafael Mateo, Research Institute of Wildlife Resources, Ciudad Real, Spain
Water pollution, Air quality, Indoor air pollution, Exposure assessment, Contaminated particulates, VOC, anthropogenic, Characterization, Automotive, Apportionment, Pollution transport, Monitoring, Analytical

Huu Hao Ngo, University of Technology Sydney, Sydney, Australia
Water and wastewater treatment and reuse, Renewable resource recovery, Clean technologies, Bioenergy and biomaterials, Sustainable development

Jose Julio Ortega-Calvo, Institute of Natural Resources and Agrobiology of Sevilla Agrochemistry Environmental Microbiology and Soil Conservation, Sevilla, Spain
Biodegradation and biotransformation of organic pollutants in soils and sediments; Bioremediation; Environmental microbiology; Bioavailability and persistence; Risk assessment

Wei Ouyang, Beijing Normal University, Beijing, China
Water environment and climate risk, Watershed environment management, Non-point source modeling and control, Diffuse pollution assessment

Fernando Pacheco, University of Tras-os-Montes and Alto Douro, Vila Real, Portugal
Hydrologic models coupled with weathering algorithms, especially in areas with significant anthropogenic pressure; multivariate statistical and environmental analyses of surface and groundwater databases, with focus on the prevention of surface and groundwater contamination; land degradation and management, as well as the negative impacts of inadequate land uses on soil erosion, surface and groundwater quality; water security issues, such as conjunctive use of surface
and groundwater sources in public water supply systems, or the attenuation of hydrologic extremes (floods, droughts) through implementation of detention basins and decentralized rainwater harvesting systems in catchments.

**Elena Paoletti**, Research Institute on Terrestrial Ecosystems National Research Council Florence Branch, Italy

Plant health, Plant ecophysiology, Forests, Climate stressors, Air pollution impacts on terrestial ecosystems, BVOC, Ground-level ozone

**Anastasia Paschalidou**, Democritus University of Thrace Department of Forestry and Management of the Environment and Natural Resources, Orestiada, Greece

Air pollution meteorology, Urban meteorology, Dust transportation, Climate change, Environmental health / Environmental epidemiology, Biometeorology, Synoptic climatology, Dispersion Modeling, Air Quality Indices

**Paulo Pereira**, Mykolas Romeris University, Vilnius, Lithuania

Soil degradation, Soil erosion, Soil processes, Forest Fires, Spatial Analysis, Mapping, Geostatistics, Ecosystem Services

**Yolanda Picó**, University of Valencia, Valencia, Spain

Media / Habitats, drinking water, water quality, water pollution, rivers, lakes, sediments, watersheds, soils, exposure assessment, human health effects, biomarkers, bioindicators, dietary exposure, food contamination, food safety, Human Health Effects, pesticides, endocrine disruptors, pharmaceutical residues, organics, analytical, surveys

**Charlotte Poschenrieder**, Autonomous University of Barcelona Faculty of Biosciences, Bellaterra, Spain

Plant-Environment Interactions, Plant-Soil Relationships, Salinity, Plant- Microbe Interactions, Plant Toxicology, Crop Production, Plant Natural Adaptation

**Sergi Sabater**, University of Girona, Girona, Spain

River and stream ecology; Biofilm ecology and ecotoxicology; Mediterranean; Water scarcity; Ecosystem functioning; Biodiversity; Conservation of rivers

**Scott C. Sheridan**, Kent State University, Kent, Ohio, United States of America

Human biometeorology, climate change, synoptic climatology, extreme temperature events

**Wei Shi**, North Carolina State University, Raleigh, North Carolina, United States of America


**Filip M.G. Tack**, Ghent University, Gent, Belgium

Heavy metals; Trace element biogeochemistry; Dredged materials; Soil and sediment remediation; Phytoremediation

**Kevin Thomas**, The University of Queensland Queensland Alliance for Environmental Health Sciences, Woolloongabba, Queensland, Australia

Contaminants of emerging concern; Non-target analysis; High resolution Mass Spectrometry; Microplastics; Biomonitoring

**Daniel Tsang**, The Hong Kong Polytechnic University Department of Civil and Environmental Engineering, Hong Kong, Hong Kong


**Paola Verlicchi**, University of Ferrara, Ferrara, Italy

Water treatment, Wastewater treatments, Reuse of reclaimed water, Occurrence and removal of pharmaceuticals from (waste)water, Hospital effluent management and treatment, Petrochemical wastewater treatment, Environmental risk assessment

**Jan Vymazal**, Czech University of Life Sciences Prague, Praha, Czechia

Soil pollution and remediation, Persistent organic pollutants, Emerging Contaminants, Antibiotics and resistant gene, Phthalate ester and microplastics, Biochar, Biodegradation, Biofilms, Analytical method

**Qilin Wang**, University of Technology Sydney Faculty of Engineering and Information Technology, Sydney, New South Wales, Australia

Anaerobic and aerobic digestion, Wastewater treatment technologies, Sludge treatment, Waste management, Antibiotic resistance genes, Process modelling of biological wastewater treatment, Microplastics, Greenhouse gas production, Algae, Biochar, Bioenergy

**Daniel A. Wunderlin**, National University of Cordoba, Cordoba, Argentina

Tracing pollutants from their source to foods, Food Integrity, including the evaluation of bioactive compounds in foods, Studying links between food production and environmental pollution

**Daqiang YIN**, Tongji University School of Environmental Science and Engineering, Shanghai, China
Persistent Toxic Substances, Emerging Pollutants, Environmental Toxicology, Ecotoxicology, Mechanisms of Action of Pollutants or Toxic Chemical, Bioassay and Biomarker, Antibiotic resistance, Risk assessment and Water Quality

**Shuzhen Zhang**, Chinese Academy of Sciences, Beijing, China
- Soil contamination, Sorption/desorption of organic contaminants, Bioaccumulation and transformation of organic contaminants in the terrestrial environment, Applications of synchrotron-based spectroscopy techniques in environmental chemistry, NOM analysis and effects on contaminant behaviors

**Yifeng Zhang**, Technical University of Denmark Department of Environmental Engineering, Kongens Lyngby, Denmark
- Microbial electrochemistry; Biosynthesis; Gas and dark fermentation; Anaerobic digestion; Advanced oxidation process; Wastewater management and resources recovery; Bioremediation; (Bio)electrochemical sensors; Water desalination

**Editorial Board**

**Jésus R. Aboal Viñas**, University of Santiago de Compostela, Santiago de Compostela, Spain
- Biomonitoring; Moss biomonitoring; Raptor biomonitoring; Algae biomonitoring; PAHs contamination; Heavy metal contamination; Cellular localization of metals; Hydrological fluxes of forest canopies

**Evgenios Agathokleous**, Nanjing University of Information Science and Technology School of Applied Meteorology, Nanjing, China
- Adaptive response, air pollution biomonitoring, carbon dioxide (CO2) ecological effects and health, dose-response relationship, ecophysiology, ecotoxicology, environmental change biology, environmental health, hormesis, hornerosis dose-response, linear-non-threshold (LNT) dose-response, no-observed-adverse-effect-level (NOAEL), organismic susceptibility, organism response to contaminants and pollutants, ozone (O3) impacts, photosynthesis, plant-insect interaction, plant-microbe interaction, preconditioning, priming, species tolerance, stress response

**Warish Ahmed**, Commonwealth Scientific and Industrial Research Organisation, Canberra, Australia
- Microbial source tracking, ARGs, Health risk, Wastewater microbiology, Water microbiology, Enteric viruses

**Souhail R. Al-Abed**, National Risk Management Research Laboratory, Cincinnati, Ohio, United States of America
- Environmental implication and applications of nanomaterials; Sediment and water remediation; Contaminant (metals and organics) transformations in the environment; Reuse of materials in environmental applications

**Abed Alaswad**, Aston University School of Engineering and Applied Science, Birmingham, United Kingdom
- Energy modelling, Bioenergy

**Dong An**, Fudan University Department of Environmental Science and Engineering, Shanghai, China
- Water treatment, Wastewater treatment, Adsorption, Advanced oxidation, Reuse water

**Alexandros G. Asimakopoulos**, Norwegian University of Science and Technology, Trondheim, Norway
- Environmental Chemistry, Risk Assessment, Human exposure, Exposure assessment, Human health effects, Biomarkers, Food safety, Human biomonitoring, Indoor and outdoor pollution, Emerging contaminants, Legacy contaminants, Wastewater epidemiology, Aquaculture chemistry, Raptors Biomonitoring, Mammals Biomonitoring, Maternal and children's health

**Takashi Azuma**, Osaka Medical and Pharmaceutical University Faculty of Pharmaceutical Sciences Graduate School of Pharmaceutical Sciences, Takatsuki, Japan
- Pharmaceuticals and personal care products (PPCPs), Antimicrobial-resistant bacteria (AMRB), Water environment, Sewage treatment plant, Hospital effluent, Occurrence and environmental fate, Water treatment system, Water management, Environmental science, Environmental hygiene

**Roya Bahreini**, University of California Riverside, Riverside, California, United States of America
- Aerosol sources; Formation processes; Composition and microphysical properties; Direct and indirect effects on climate

**Xiaoyong Bai**, Institute of Geochemistry Chinese Academy of Sciences, Guiyang, China
- Karst, Ecosystem services, Soil Erosion, Environmental Remote Sensing, Ecological Restoration, Climate Change, Carbon sink, Ecotoxicology and risk assessment, Geochemistry, Soil Organic Carbon

**Michael Bank**, Institute of Marine Research, Bergen, Norway
- Mercury, microplastics, ocean health, seafood safety, ecotoxicology, isotopic niches, Bayesian modeling, contaminants

**Kunshan Bao**, South China Normal University, Guangzhou, China
- Anthropocene, Atmospheric dust, Carbon burial, Climate change, Decipher human-climate interactions, Ecological risk assessment, Human impact, Historical trend, Holocene, Lake and wetland environmental change, Land cover change, Nutrient accumulation, Paleoecology, Peatland, Potential harmful trace element, Polycyclic aromatic hydrocarbon, Pesticides, Radiisotopes, Rare earth elements
Carlos Barata, Institute of Environmental Assessment and Water Research, Barcelona, Spain
Analytical chemistry; Aquatic toxicology; Environmental risk assessment; Toxicogenomics

Roberto Bargagli, University of Siena, Siena, Italy
Environmental biogeochemistry, active and passive biomonitoring of persistent contaminants in terrestrial and aquatic ecosystems

Georgios Bartzas, National Technical University of Athens - Zografou Campus, Zografos, Greece
Waste management, Environmental monitoring and Risk assessment, Life cycle analysis, Soil and Groundwater decontamination, Geochemical/Thermodynamic modelling, Heavy metals and metalloids, Climate change

Ivan Bergier, Brazilian Agricultural Research Corporation Pantanal, CORUMBA, Brazil
Expertise in sustainable development, particularly in the following areas: environmental services, ecology and biogeochemistry of ecosystems and agroecosystems; Bioenergy; Biofuels; Biochar; Remote sensing; Electron microscopy; Applied to nanotechnology, electronics and automation; Climate change adaptation; Mitigation of greenhouse gases emissions

Rafael Bergillos, University of Cordoba, Cordoba, Spain
Coastal Engineering, Beach Morphodynamics, Coastal Flooding, Ocean Energy, River Deltas, Fluvial Processes, Fluvial Hydraulics, Management Strategies, Climate Change, Sustainable Development

Harald Biester, Braunschweig University of Technology, Braunschweig, Germany
Biogeochemical cycling of mercury and trace elements; Biogeochemistry of peatlands

Lubertus Bijlsma, University Jaume I, Research Institute for Pesticides and Water, Castillon, Spain
Liquid Chromatography Mass Spectrometry; Ion mobility; Water quality; Contaminants of emerging concern; Wastewater-based epidemiology.

Jayanta Kumar Biswas, University of Kalyani, Kalyani, India
Water and soil contamination, Remediation of contaminants, Ecotoxicology of metal(l)loid(s) and emerging contaminants, Bioremediation, Environmental microbiology, Ecological engineering, Ecotechnology, Nanobiotechnology, Wastewater treatment and resource recovery

Paul Bradley, US Geological Survey South Atlantic Water Science Center, Columbia, South Carolina, United States of America
Drinking Water Exposure; Water Quality; Environmental and Public Health; Contaminants of emerging concern; Pharmaceuticals; Water Reuse; Remediation; Environmental microbiology; Urban and Aquatic Ecology

Satinder Brar Kaur, INRS – Research Centre on Water Earth and the Environment, Quebec, Quebec, Canada
Wastewater; Wastewater sludge; Treatment; Emerging contaminants; Antibiotics; Fermentation; Value-added bioproducts, such as enzymes, organic acids, platform chemicals, biocontrol agents, biopesticides, butanol and biohydrogen

Bryan W. Brooks, Baylor University Department of Environmental Science, Waco, Texas, United States of America
Water Quality, Environmental and Aquatic Eco-toxicology, Risk and Hazard Assessment, Comparative Pharmacology and Toxicology, Environmental Public Health, Harmful Algal Blooms, Green and Sustainable Chemistry, Urban and Aquatic Ecology, Water Reuse.

Giorgio Buonanno, University of Cassino and Southern Lazio, Cassino, Italy
Air pollution; Air quality; Indoor air pollution; Clean technologies; Incineration

Joanna Burger, Rutgers University Division of Life Sciences, Piscataway, New Jersey, United States of America
Eco-toxicology; Behaviour; Monitoring and assessment; Birds and reptiles

Glòria Caminal Saperas, Institute of Advanced Chemistry of Catalonia, Barcelona, Spain
Biochemical engineering; Environmental engineering (focused on biodegradation of pollutants by microorganisms or enzymes); Bioreactors; Immobilization; Kinetics

Art Chappelka, Auburn University, Auburn, Alabama, United States of America
Air pollution and global climate effects to terrestrial ecosystems; Native plant community responses (shifts in diversity) to air pollutants and global climate change; Plant-stress-air pollution/global climate change interactions; Urban ecology and ecosystem services

Da Chen, Jinan University, Guangzhou, China
Environmental chemistry; Analytical chemistry; Ecotoxicology; Persistent organic pollutants; Flame retardants; Pesticides; Mass spectrometry; Gas/liquid chromatography.

Wei Chen, Nankai University College of Environmental Science and Engineering, Jinnan District, Tianjin, China
Nanoparticles; Nanomaterials; Adsorption; Reactivity; Transport; Remediation; Groundwater; Soil; Organic contaminants

Xueming Chen, Fuzhou University, Fuzhou, China
Biological wastewater treatment (Mathematical modelling of bioconversion processes, Advanced technologies for nitrogen removal, Biological nutrients removal and recovery from wastewater,
Greenhouse gases emissions and mitigation from wastewater management, Membrane-based biofilm technology

Chin K. Cheng, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates
Wastewater treatment, sustainable development, clean energy, carbon footprint, water footprint, biofuel, waste-to-wealth, bio-hydrogen, green chemistry

Joaquín Cochero, National Scientific and Technical Research Council, Tucumán, Argentina
Biofilm; Stream ecology; Biomonitoring; Urban streams; Citizen science

Güido Del Moro, Water Research Institute National Research Council Bari Branch, Bari, Italy
novel processes for wastewater treatment, aerobic granular biomass technologies, integration of chemical oxidation and biological processes for industrial wastewater, advanced oxidation processes, electro-degradation processes, wastewater treatment modelling

Andrea Di Guardo, Environmental informatics, Milano, Italy
environmental fate of pesticides, landscape impact assessment, risk assessment of veterinary pharmaceuticals; environmental decision support systems, air pollution, environmental modelling, software engineering for the environment

José L. Domingo, Rovira and Virgili University School of Medicine Laboratory of Toxicology and Environmental Health, Reus, Spain
Environmental health, Risk assessment, Persistent organic pollutants, Metals, Food contaminants, Toxicology

Judit Z. Drexler, US Geological Survey California Water Science Center, Sacramento, California, United States of America
Carbon accumulation in wetlands, Impacts of climate change on coastal ecosystems, Invasive plants as ecosystem engineers, Peat soils as archives of environmental change, Wetland restoration

Ali Ercan, University of California Davis, Davis, California, United States of America
Physically-based hydrologic and hydraulic modeling, river basin management, environmental hydrology and hydraulics, modeling impacts of changing climate, stochastic flow and transport processes, scaling, time series modeling, flood forecasting.

Ronald C. Estoque, National Institute for Environmental Studies Center for Social and Environmental Systems Research, Ibaraki, Japan
GIScience and Remote Sensing, Land Change Science, Urban/Landscape Ecology, Sustainability Science, Climate Change Vulnerability/Risk/Adaptation

Zhaozhong Feng, Nanjing University of Information Science and Technology School of Applied Meteorology, Nanjing, China
Air pollutant, BVOCs, Crop growth, Forest health, N deposition, N use and allocation, Ozone pollution, Photosynthesis and C cycle, Water use efficiency, Urban environment and forestry

Jose Angel Fernández, University of Santiago de Compostela, Santiago de Compostela, Spain
Air pollution; Air quality; Water pollution; Rivers; Ecological effects; Bioavailability; Bioindicators; Aquatic toxicology; Heavy metals; Biomagnification; Bioaccumulation; Surveys; Moss; Biomonitoring; Western Europe

Bo Gao, China Institute of Water Resources and Hydropower Research, Beijing, China
Geochemistry of trace metals in environment; Water and sediment transport; Large-scale watershed management

Alejandro García-Gil, Geological and Mining Institute of Spain Geological Risks Processes and and Global Change, Zaragoza, Spain
Urban hydrogeology; Groundwater quality; Shallow geothermal exploitation impacts on water resources; Groundwater management; hydrogeochemistry; River-groundwater interaction; Groundwater flow and reactive transport numerical modelling; Groundwater microbiology; Emerging organic contaminants

Ruben Aldaco Garcia, University of Cantabria, Santander, Spain
Life Cycle Assessment; Circular Economy; Water-Energy-Food Nexus; Bioeconomy; Industrial Ecology.

Jorge Gardea-Torresdoy, The University of Texas at El Paso, El Paso, Texas, United States of America
Applications of spectroscopy techniques in environmental chemistry; Phytoremediation; Novel methods for the bioproduction of nanoparticles; Development of analytical methods to detect nanomaterials; Study of the fate of nanoparticles in the environment; Applications of nanotechnology to clean water

Leobardo Manuel Gómez Oliván, Autonomous University of Mexico State, Toluca, Mexico
Aquatic toxicology, Fish toxicity, Emerging contaminants, Metals, Genotoxicity, Citotoxicity, Embryotoxicity, Teratogenesis, Oxidative stress, Biomarkers

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Groundwater, Biogeochemical cycles, Residence time indicators

Andrew Gray, University of California Riverside, Riverside, California, United States of America
Sediment transport, Hydrology, Water quality, Plastic pollution, Watershed sediment dynamics, Sedimentology, Paleoenvironmental analysis

John Gulliver, University of Leicester, Leicester, United Kingdom
Noise and air pollution exposure assessment; Air pollution monitoring; Dispersion modelling; Land use regression modelling; Geographical information systems; Geo-statistical techniques (Kriging etc.); Spatial analysis of environmental and health data; Geographical studies of environment and health; Health risk assessments

Xuetao Guo, Northwest Agriculture and Forestry University, Yangling, Shaanxi, China
Microplastics, Pharmaceuticals and personal care products (PPCPs), Antibiotics, Antibiotic resistance, Adsorption, Occurrence and environmental fate, Environmental monitoring

Ying Guo, New York State Department of Health, Albany, New York, United States of America
My research interests: (1) biomonitoring organic chemicals in human body, such as phthalates, PAHs, organophosphate pesticide and environmental phenols; (2) monitoring organic pollutants in environment, e.g., persistent organic pollutants; (3) Analytical method development for novel organic contaminants in various environmental matrix. Recently, I am working on Exposome to women with fertility problems.

Gary Hardiman, Queen's University Belfast, Belfast, United Kingdom
Computational biology, Epigenetics, Endocrine disruption, Systems biology, Biomarkers of exposure and human health risk assessment, Diagnostic tool development

Neil S. Harris, University of Alberta, Edmonton, Alberta, Canada
Expertise: cadmium, microneutrants, membrane transporters, trace metal uptake and translocation in plants

Tham Hoang, Loyola University Chicago, Chicago, Illinois, United States of America
Metal bioavailability and toxicity, Mixture toxicity, Pesticide toxicity, Microcosm studies, Water quality and pollution; Aquatic toxicology, Bioaccumulation of pollutants, Ecological risk assessment, Microplastics and environmental effects

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Exposure assessment; Air pollution modelling; Environmental epidemiology

Patricia A. Holden, University of California Santa Barbara, Santa Barbara, California, United States of America
Water quality; Environmental microbiology; Fecal pollution, Biodegradation and bioremediation; Soil pollution and soil processes; Nanomaterials; Wastewater treatment; Biogeochemistry; Emerging contaminants; Hydrocarbons; Metals

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Soil Science, Soil use and management, soil fertility, soil organic carbon management, soil contamination & remediation, degraded land restoration

Kiril Hristovski, Arizona State University Ira A Fulton Schools of Engineering, Tempe, Arizona, United States of America
Environmental applications and implications of nanomaterials, Water/wastewater treatment and quality, Solid and hazardous waste management, International environmental management, Environmental sensor technologies

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Environmental Engineering, Bioengineering, Biomedical Engineering, Bioremediation, Emerging contaminants, Wastewater treatment, Biomaterials, Bio-catalysis, Enzymes, Enzyme-based pollutant degradation, Immobilization, Toxic heavy elements, Liquid and solid waste management, Valorization of agro-industrial wastes and by-products

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Land use/ land cover, Carbon and nitrogen cycling, Ecology, Hydrology, Drylands, Urbanization, Spatial analysis, Remote sensing

Rong Ji, Nanjing University, Nanjing, China
Organics; Terrestrial; Biodegradation; Environmental process; Radiotracer

Sunny Jiang, University of California Irvine, Irvine, California, United States of America
Environmental Microbiology, Environmental Engineering, Water Treatment, Environmental Technology, Microbial Risk Assessment

Wei Jiang, Shandong University Environment Research Institute, Qingdao, China
Environmental risk of nanomaterials; Nano-bio interaction; Cell membrane damage; Cytotoxicity; Nanoparticle transport

Weiying Jiang, California Environmental Protection Agency, Sacramento, California, United States of America
Organics; Pesticides; Dust; Analytics

Begoña Jiménez, Spanish Scientific Research Council, Madrid, Spain
Persistent Organic Pollutants (POPs), Dioxins, PCBs, Fate of POPs, Contaminants of emerging concern, Organic pollutants in aquatic and terrestrial ecosystems, Bioindicators, Marine mammals, Air Pollution, Environmental chemistry, Monitoring

Sarah Jovan, USDA Forest Service Pacific Northwest Region, Portland, Oregon, United States of America
My greatest expertise is in using lichen community composition for monitoring and quantifying nitrogen pollutants. But I also work with lichen/moss tissue assays (for N, S, metals, PAHs), landscape-scale community-based gradient modeling more generally, and biomass modeling for ground-dwelling non-vascular communities in boreal and tundra systems.

Anna Jurado, TU Dresden, Dresden, Germany
Aquifer recharge quantification, Emerging organic contaminants, Greenhouse gases, Groundwater quality, Groundwater management, Urban groundwater, River-groundwater interaction, Managed aquifer recharge, Numerical modelling, Quantitative hydrogeology

Athanasios Katsogiannis, European Commission Joint Research Centre Ispra Sector, Ispra, Italy
Environmental Chemistry and pollution characterisation in all environmental compartments, including oceans and polar regions. Wastewater treatment processes and impact on the surrounding environment, Environmental occurrence and fate of new and emerging pollutants, with particular attention on remote and polar areas, Emission and source identification of volatile and semi-volatile organic compounds from various sources

Nerantzis Kazakis, Aristotle University of Thessaloniki, Thessaloniki, Greece
Groundwater modelling, Groundwater vulnerability, Hydrogeochemistry, Hydrogeophysics, Isotope hydrology, Water resources management, Floods, Climate change impacts on water resources, Managed Aquifer Recharge

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Soil–plant-water relations, Drought stress, Elevated carbon dioxide, Uptake of heavy metals by plants

Charles Knapp, University of Strathclyde, Glasgow, Scotland, United Kingdom
Microbial ecology; Bacteria; Microorganisms; Wastewater; Surface water; Nutrients; Eutrophication; Antibiotic resistance; Antimicrobial resistance; Molecular ecology

Dana Kolpin, US Geological Survey Central Midwest Water Science Center, Iowa City, Iowa, United States of America
Endocrine disruptors; Pharmaceutical residues; Non-point; Pollution transport; Chemical transport

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Prashant Kumar, University of Surrey, Guildford, United Kingdom
Air quality and health; Airborne ultrafine and nanoparticles; Exposure assessment; Low-cost pollution sensing; Exhaust and non-exhaust emissions; Air pollution control; Grey-grey infrastructure interactions; Indoor air quality; Dispersion modelling; Urban nexus; Future cities/megacities

Keisuke Kuroda, Toyama Prefectural University, Imizu, Japan
Subsurface geochemistry and mitigation technologies of contaminants of emerging concern (CECs)

James Lam, The Education University of Hong Kong Department of Science and Environmental Studies, Hong Kong, Hong Kong
POPs, Emerging contaminants, Risk assessment

Jae-Seong Lee, Sungkyunkwan University College of Natural Science, Suwon, South Korea
Molecular ecotoxicology, comparative genomics, rotifers, copepods, killifish, oxidative stress, mechanistic toxicity, lipid metabolism, microplastics, emerging chemicals, ocean acidification

Guoyong Leng, University of Oxford Environmental Change Institute, Oxford, United Kingdom
Crop Modeling, Global Food Security, Water-Food Nexus, Climate Change, Hydrometeorology, Droughts, Land Surface Modeling

Juying Li, Shenzhen University, Shenzhen, China
Organics; Bioavailability; Isotopes; Analysis; Degradation; Soil-plant system; Transformation; Toxicity

Shibin Li, Syngenta Crop Protection LLC, Greensboro, North Carolina, United States of America
Environmental toxicology, Regulatory toxicology, Ecotoxicology, Exposure science, Risk assessment, Product safety

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Microbial heavy metal remediation, Heavy metal remediation genes, Synthetic biology for environment, Waste water treatment, Bio-energy.

Zhao-Jun Li, Chinese Academy of Agricultural Sciences Institute of Agricultural Resources and Regional Planning, Beijing, China
Antibiotics and related resistance genes in manure or environments, emerging contaminants, Heavy metal contamination, reuse of agricultural wastes.

**Daohui Lin**, Zhejiang University, Hangzhou, China
Nanomaterials; Ecotoxicity; Nanotoxicity; Bioavailability; Colloidal behavior; Sorption

**Kunde Lin**, Xiamen University, Xiamen, China
Organic contaminants; Active sampler

**Xiaobo Liu**, Guangdong Technion-Israel Institute of Technology, , China
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**Yangxian Liu**, Jiangsu University, School of Energy and Power Engineering, Jiangsu, China
Air pollutant control, Gaseous pollutants removal (e.g., SO2, NOx, Hg0, CO2, H2S, etc.) by oxidation, adsorption and/or catalysis, Advanced oxidation technology for removal of gaseous pollutants

**Manuel Esteban Lucas-Borja**, University of Castilla-La Mancha, Ciudad Real, Spain
Forest Hydrology, Soil erosion, Forest fires, Forest Management, Mediterranean forest

**Ralf Ludwig**, Ludwig Maximilians University Munich, Munich, Germany
Hydrology; Water resources management; Climate change; Land use change; Extreme events; Modeling; Remote sensing

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Metal toxicity in plants; Metal localization in plants; Rhizosphere chemistry

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Human exposure, environmental health, non-pharmacological trials, metabolomics

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Ecotoxicology, Nanomaterials, Aquatic environment, Seawater, Microalgae, Seaurchin, Risk assessment

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Water quality modelling; Numerical modelling and programming in various languages (notably Fortran, in relation to numerical modelling); Transport and fate of nanoparticles and microplastics in the aquatic environment

**Antonio Martínez Cortizas**, University of Santiago de Compostela, Faculty of Biology, Department of Edaphology and Agricultural Chemistry, Santiago de Compostela, Spain
Continental sediments and soils (lake sediments, peat, colluvium, soil) and marine sediments, mainly focused in the field of environmental geochemistry, dedicated to the understanding of the cycles of the elements, ecosystem process and Quaternary environmental changes.

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Alternative treatments in aquaculture; Impact (and interaction) of humic substances on environment and animals.

**Natalie Mladenov**, San Diego State University, San Diego, California, United States of America
Natural organic matter, chemicals of emerging concern, water reuse, decentralized wastewater treatment, onsite sanitation, microplastics and marine debris, fluorescence spectroscopy, stormwater quality, organic aerosol deposition

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Environmental chemistry; Biogeochemistry; Bioaccumulation; Persistent organic pollutants; Chemicals of emerging concern; Chemical inventories; Mercury; Polycyclic aromatic compounds; Arctic; Marine mammals; Fish

**Amitava Mukherjee**, VIT University Centre for NanoBiotechnology, Vellore, India
Photo catalytic Nanomaterials, Nano-remediation of Emerging Pollutants, Nano-biosensors for Environmental Contaminants, Protein-Nanomaterials Interactions, Green synthesis of Nanomaterials

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Vincenzo Naddeo, University of Salerno, Fisciano, Italy
Water-energy-food-nexus, water quality, biotechnology, advanced oxidation processes (AOPs), climate change, algae-based technology, co2 sequestration/capture, hydrogen, biogas, biomethane

Jacek Namieśnik, University of Gdansk, Gdansk, Poland
Environmental analytics and monitoring; Food analysis; QA/QC systems; Green analytical chemistry; Envirometrics

Howard S. Neufeld, Appalachian State University, Boone, North Carolina, United States of America
The effects of ozone on plants; The role of anthocyanins in vegetative tissues in plants; Climate change impacts on plants in the southern Appalachian mountains; Measuring plant gas exchange and plant water relations, using the Li-Cor 6400 and 6800 gas exchange systems, a Sperry hydraulic conductivity apparatus and Scholander pressure chamber, as well as a variety of other instrumentation (including leaf fluorescence meter) to monitor plant responses to environmental stresses

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Soil and groundwater pollution; Biochar; Microplastics (MPs); Green and sustainable solutions; Contaminated land remediation

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Geopolymers, Concrete, Cement, Properties, Durability, Construction and demolition wastes, Industrial waste recycling, Masonry bricks, Masonry blocks, Nano particle based concrete, Concrete nanotechnology, Alkali-activated cement, Concrete with polymer admixtures, Biopolymer based concrete, Concrete recycling, Recycled aggregates, Construction wastes, Demolition wastes

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Eutrophication and eutrophication indexes according to WFD and MSFD; Biogeochemical cycles and nutrient dynamics in marine environments (coastal and open sea)

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Trade-offs, supply-demand budget, scenario modelling, spatial planning

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Toxicokinetic modelling, Toxicodynamic modelling, Ecotoxicology, Mixtures, Integrated risk assessment

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The effects and mechanisms of action of bisphenols on the immune system and reproductive neuroendocrine system in fish; parental exposure to antibiotics affects developmental immune system in zebrafish offspring and its mechanisms of action; Metagenomics/metagenetics as a key to improving sustainable crop fertility and productivity and contributing to overall 'soil health'.

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Water quality, environmental microbiology, fecal pollution, harmful algal blooms, emerging contaminants, environmental monitoring, wastewater treatment, water pollution, water reuse, environmental health, climate change, antibiotic resistance, microbial risk assessment, microbiome, next-gen sequencing.

Wei Shi, Nanjing University, Nanjing, China
Environmental fate of emerging organic pollutants; Effect directed analysis based on instrumental analysis and bioassays

Rui da Silva Coutinho, University of the Azores, Ponta Delgada, Portugal
Hydrogeology, Volcanology, Natural Hazards, Water Resources Management, Environmental Geology.

Andreas Skouloudis
Zhaoliang Song, Tianjin University Institute of Surface-Earth System Science, Tianjin, China
Phytolith, silicon cycle, carbon cycle, nutrient cycle, stable isotopes, vegetation-soil system

Athanasios S. Stasinakis, University of the Aegean Department of Environment, Mytilini, Greece
Wastewater treatment and valorization, Sludge management, Emerging contaminants, Aquatic pollution, Biodegradation

Marianne Stuart, British Geological Survey - Wallingford Office, Wallingford, United Kingdom
Ecosystem biogeochemistry; ecological impact of trace metals; ecosystem acidification; air pollution impacts on ecosystems

**Jianming Xue**, New Zealand Forest Research Institute Ltd. (Scion), New Zealand

Biowaste and wastewater reuse, Emerging contaminants in biowaste and soil, Fate and transport of contaminants in terrestrial ecosystems, Antibiotic pollution and remediation, Biochar for environmental management, Plant uptake and translocation of contaminants, Plant-soil-microbe interactions, Phytoremediation of contaminated soils and water, Biowaste management and climate change

**Ishwar Chandra Yadav**, Tokyo University of Agriculture and Technology Graduate School of Agriculture Research Division of International Environmental and Agricultural Scienc, Tokyo, Japan

Persistent organic pollutants; Brominated and phosphate flame retardants; Heavy metal pollution; Aerosols; South Asia; PM2.5; Solid waste; E-waste; Himalayas

**Kun Yang**, Zhejiang University, Hangzhou, China

Organics, adsorption, organic matter

**Yi Yang**, East China Normal University, School of Geographical Sciences; State Key Laboratory of Estuarine and Coastal Research, Shanghai, China

Nanoparticles, Behavior, Incidental, POPs, ARGs

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Trace elements; Soil; Biogeochemistry; Redox processes; X-ray spectroscopy

**Jing You**, Jinan University, Guangzhou, China

Organics; Ecotoxicology; Sediment; Pesticides

**Yang Yu**, Beijing Forestry University School of Soil and Water Conservation, Beijing, China

Land degradation, Integrated watershed management, Vegetation restoration, Soil and water conservation, Ecosystem services, Dryland ecology.

**Massimo Zacchini**, National Research Council, Roma, Italy

**Teng Zeng**, Syracuse University, Syracuse, New York, United States of America

Occurrence and fate of organic micro-pollutants; Formation and control of disinfection by-products

**Chaosheng Zhang**, National University of Ireland Galway, Galway, Ireland

GIS and Environmental Geochemistry

**Huichun Zhang**, Case Western Reserve University Department of Civil Engineering, Cleveland, Ohio, United States of America

Oxidation, Reduction, Adsorption, Predictive Modeling, Emerging Contaminants

**Xiaowei Zhang**, Nanjing University, Nanjing, China

Ecotoxicology, Toxicogenomics, Ecogenomics, Endocrine disrupting chemicals, Effect based analysis, Adverse Outcome Pathways Biomonitoring, Biodiversity, Ecosystem Functions.

**Yong Zhang**, Xiamen University, Xiamen, China

PAHs; Organic matter; Marine environments

**Jian J. Zhao**, Ocean University of China, Qingdao, China

Microplastics, Engineered nanoparticles, Nanoplastics, Toxicity, Environmental Behaviors

**Bing Song Zheng**, Zhejiang Agriculture and Forestry University, Human Resource Department, Hangzhou, Zhejiang, China

Plant-Environment Interactions; Forests; Heavy metals; Bioenergy; Environment stress; Plant ecophysiology

**Hussein Znad**, Curtin University, Perth, Western Australia, Australia

Microalgae & algal environmental applications; Wastewater/Air polluted treatment; Ad/Bio-sorbent development for heavy and rare earth metals; Optical functionalized nano-materials for detecting and removing metals from aqueous solution; Photo/catalyst development; Advanced Oxidation Processes (Photo-Fenton, Ozone, UV/Solar, ZnO/TiO)

**Wenshan Guo**, University of Technology Sydney Faculty of Engineering and Information Technology, Sydney, New South Wales, Australia

Membrane bioreactor, advanced biological treatment technologies, micropollutants, resource and energy recovery, wastewater treatment
GUIDE FOR AUTHORS

INTRODUCTION

Aims and Scope

*Science of the Total Environment* is an international multi-disciplinary journal for publication of novel, hypothesis-driven and high-impact research on the **total environment**, which interfaces the **atmosphere**, **lithosphere**, **hydrosphere**, **biosphere**, and **anthroposphere**.

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   - Ecotoxicology and risk assessment
   - Eco-hydrology
   - Wildlife and contaminants
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   - Environmental impacts of waste or wastewater treatment
   - Drinking water contaminants and health implication
   - Environmental remediation of soil and groundwater
   - Global change-induced extreme events and environmental impacts
   - Groundwater hydrogeochemistry and modeling
   - Nanomaterials, microplastics, and other emerging contaminants
   - Novel contaminant (bio)monitoring and risk assessment approaches
   - Remote sensing and big data applications in multiple spheres
   - Stress ecology in marine, freshwater, and terrestrial ecosystems
   - Trace metals and organics in biogeochemical cycles
   - Water quality and security
   - Critical reviews or Discussion on current or emerging topics
   - Fast-track submissions (less than 2 weeks): Ground-breaking discoveries with immediate impact

2) **TYPES OF SUBMISSIONS NOT TO BE CONSIDERED:**
   - Papers not contributing significant new knowledge to the field of study
   - Disciplinary studies with limited environmental relevance
   - Local or regional scale case studies lacking international relevance
   - Soil or plant science studies without environmental implications
   - Laboratory batch experiments without an application component, e.g., batch sorption experiments, preparation, and evaluation of sorbents or catalysts for contaminant removal
   - Manuscripts that are primarily data reports without a substantial hypothesis, e.g., monitoring of common contaminants
   - Modelling studies without calibration and data validation
   - Papers of social science in nature on environmental or resource economics, policy and management
   - Toxicology and ecotoxicology studies testing single chemicals in bench-scale assays
   - Human health studies that do not provide significant additional understanding of air pollution induced health outcomes
   - Method development papers on common contaminants
   - Bibliometric analysis-based papers

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