

10th World Conference on Sampling and Blending (WCSB10)

Introduction

The WCSB10 conference will cover the latest research and application of the Theory of Sampling (TOS) and Blending in many important technology and industry sectors: mining, exploration, minerals processing, metals refinement, cement, food and feed, agri- and aquaculture, pharmaceutical production etc.

WCSB10 specifically has a broader societal, industrial and environmental emphasis with a special focus on sustainable science, technology and industry.

COVID-19

Due to the global impact of the coronavirus pandemic, it is impossible to know the scope and the precise conditions for international scientific conferences in the foreseeable future. The organising and scientific committees have, therefore, decided to prepare for several scenarios. Right up until the publication date of *TOS Forum*, planning for WCSB10 was in the hope that the conference could take place as an in-person conference as usual. However, it has now been decided that an in-person conference in June 2021 will not be safe—see bottom of p. 4. Therefore, WCSB10 will be postponed to June 2022. The committees will, of course, minimise possible economic consequences for the hosting party, for the conference sponsors and for already registered participants.

All developments affecting WCSB10 will be reported regularly on the conference website.

Historical backdrop: WCSB1–9

WCSB10 represents the continuation of the activities carried out over two decades by the global sampling community. The first nine conferences bear witness to steadily increasing scientific and social results, and a well-documented series of high-quality proceedings. The number of attendees to the inaugural WCSB1 in 2003 (Esbjerg, Denmark) was 117, which has grown at succeeding conferences with an average level of ca 150–175, and culminating in the unique 556 delegates to WCSB9 in Beijing, China (2019), where the proceedings reached 810 pages, out-pacing any

previous conference. This two-decade development is, needless to say, highly satisfactory for the global sampling community, which has, since 2017, been organised as the International Pierre Gy Sampling Association (IPGSA).

WCSB10: a sustainable scientific conference

WCSB10 will likely continue the qualitative growth from previous conferences, but not necessarily in terms of quantitative numbers. The organisation committee and the EYDE Industrial Cluster would like to introduce a new sustainable direction for this conference, and future conferences as well. WCSB10 will be targeting the UN world development goals Nos 9 and 12, which address sustainable industry, innovation and infrastructure, and responsible production and consumption, respectively. It is hoped that the sampling community is interested and willing to contribute towards fulfilling the aspirations embedded in these goals. To facilitate this, some new items on the conference agenda are being introduced for WCSB10:

- The environment and sustainability is included as a new, separate session in the programme. All conference speakers are encouraged to reflect on if, and how, their work can contribute to more sustainable industry.

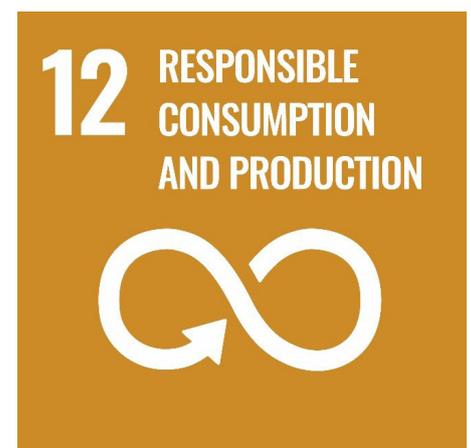
- Conference target numbers are deliberately scaled back. The committees wish to welcome you to a conference that is high in scientific quality and with pleasant social experiences. But WCSB10 does not need to match, far less surpass the unique scale and numbers achieved by the previous conference. This aim is also a reflection of the parallel activity of organising semi-regular Australian, South African and South American sampling conferences in the intervening years between the bi-annual WCSB.

- The amount of printed material and giveaways will be scaled down, as it is believed that the digital format is convenient and readily available worldwide.

- The organisation committee is working on offering a streaming option from WCSB10. If you cannot travel to Norway, this option will allow you not to miss out on the key scientific sessions at the conference. With this option you will also get a digital copy of the conference proceedings.

Scientific programme

An exciting programme of high-quality presentations is being developed. The following themes will form the core of the conference programme:



Tuesday June 1	Wednesday June 2	Thursday June 3
<p>Theory of Sampling (TOS) / Quality Control & Quality Assurance Keynote Speaker: Francis Pitard</p>	<p>Sampling for Environment / sustainability / Circular Economy Technical Speaker: Roger Brewer</p>	<p>Mining / Minerals / Metals QA/QC Keynote Speaker: Ralph Holmes Technical Speaker: Oscar Dominguez</p>
<p>Theory of Sampling (TOS) / Quality Control & Quality Assurance Keynote Speaker: Geoff Lyman</p>	<p>Sampling for Environment / sustainability / Circular Economy Technical Speaker: Gerrit van Hooydonck</p>	<p>Mining / Minerals / Metals Keynote Speaker: Dominique Francois-Bongarcon</p>
Lunch		
<p>Mining / Minerals / Metals Keynote Speaker: Richard Minnitt</p>	<p>Sampling for Pharma / Agro / Feed / Food / Aquaculture / GMO / Safety Technical Speaker: Rodolfo Romanach</p>	<p>Process Analytical Technology (PAT) Keynote Speaker: Kim H. Esbensen Technical Speaker: Martin Lischka</p>
<p>Mining / Minerals / Metals Keynote Speaker: Li Huachang Technical Speaker: Stefan Brochot</p>	<p>Sampling for Pharma / Agro / Feed / Food / Aquaculture / GMO / Safety Technical Speaker: Claudia Paoletti</p>	<p>History, Developments, Perspectives Keynote Speaker: Pentti Minkkinen History of WCSB/IPGSA: Harry Krumbein</p>
<p>Gala Dinner</p> <p>Pierre Gy Sampling Gold Medal Awardee speaker: TBA</p>		

- Theory of Sampling (TOS)
- Quality Assurance/Quality Control (QA/QC)
- Mining and Process Industry
- Minerals and Metals
- Environmental Sampling, Sustainability and Circular Economy
- Agri-, Food, Feed and Aquaculture Sampling
- Pharmaceutical Sampling
- Process Analytical Technology (PAT)
- New Developments and Equipment in Sampling

Keynote and technical speakers have already been invited for all sessions.

Details on how to submit your presentation can be found at <https://wcsb10.com/contact/>. The Scientific Committee will determine if an oral or poster presentation is appropriate.

Short courses

Prior to the official programme, short courses will be held, arranged by experts in the field of sampling, which will give participants an opportunity to strengthen their expertise.

One-day short courses

Introduction to the Theory and Practice of Sampling (TOS)—a New Didactic for Science, Technology, Industry, Commerce and Society

Course provider: Kim H. Esbensen (KHE Consulting, Denmark)

Grade Control in Underground Gold Operations

Course provider: Dr Simon Dominy

Process Analytical Technology (PAT) and TOS-Compliant Sampling in Pharmaceutical Production and Monitoring—the Rules of the Game!

Course providers: Brad Swarbrick, Rodolfo Romañach and Kim H. Esbensen

Two-day short courses

Variograms and their Analysis for Improved Process Knowledge

Course provider: Dr Geoffrey Lyman (Principal, Materials Sampling & Consulting, Southport, Australia)

Sampling Theory and Practice, their Economic Impact (Day 1) and Analysis of Sampling Correctness and the Futility of Bias Tests (Day 2)

Course providers: D. Francois-Bongarcon (AGORATEK International Consultants Inc., Canada) and Francis F. Pitard (Francis Pitard Sampling Consultants, LLC).

Detail of each short course can be found at <https://wcsb10.com/program/workshop-and-shortcourses/>

Proceedings

The Proceedings of WCSB10 will be published by IM Publications Open in both print and online versions. The online edition will be available as a special

WCSB10 in-person conference off for 2021, postponed to 2022

Due to global coronavirus developments as of mid-October 2020, the organising committee together with the hosting EYDE Industrial Cluster has had to conclude that it will not be safe to conduct WCSB10 as an in-person conference in 2021. The WCSB10 conference will be postponed to 2022, still in the in-person format, venue and timing likely unchanged: June 2022.

Further information will be made public on the WCSB10 website as soon as possible. Please keep checking wcsb10.com.

However, rather than just waiting out the pandemic for the 18 next months, the WCSB committees and EYDE Cluster are developing plans for a complementary event at the time of the postponed conference in 2021. This will be a digital event in the form of a one-day symposium.

The theme and topics of the symposium are being discussed and will be announced on the WCSB10 website. In any case, the topics will be guided by a natural focus on the two UN World Goals, “Sustainable

production” and “Environmental stewardship” of the in-person conference in 2022 (see wcsb10.com).

All 2021 presentations will qualify for peer review on an equal basis with the 2022 WCSB10 conference presentations. The full WCSB10 Proceedings (2022) will thus include all successfully reviewed and accepted papers from this 2021 event.

Further information will be made public on the WCSB10 website as soon as possible.

PLEASE FOLLOW DEVELOPMENTS CLOSELY AT WCSB10.COM



Kristiansand waterfront by night. The conference hotel is to the left. Photo: Gorm Helge Grønli Rudschinat

issue of *TOS Forum* via the conference website, IM Publications Open and the IPGSA internet portal. In-person conference participants will receive a print copy at the conference.

Open access

The online edition will be an Open Access publication: freely available without any need for registration or other access requirements. This helps provide the widest dissemination for your work and allows all interested parties to read the latest research on the Theory of Sampling.

Authors' rights

Authors retain all rights in their paper, including copyright, and can choose a Creative Commons licence to publish under. This just makes it easy for authors. There is no need to worry whether you need permission to reuse your own work in future. You are free to submit to other publications; of course, their particular reviewing policy would apply.

Submission details

More information can be found at <https://wcsb10.com/proceedings/>.

Venue

The conference venue is Kristiansand, southern Norway. Kristiansand is popular with summer visitors who love to bask in the sun along *Fiskebrygga* (harbour area),

stroll along the picturesque streets of *Posebyen* (the old town) or take a short hike in *Ravnedalen*. This beautiful city by the sea, with endless summer nights, offers many cultural and culinary opportunities for you to explore.

Conference hotel

The conference hotel is the Radisson Blu Caledonien Hotel, Kristiansand. Its city centre location right beside the sea provides a perfect base for enjoying the city. You will be staying within walking distance of the bus, ferry and railway stations and just 20 minutes from Kjevik Airport.

Committees

The Scientific and Organising Committees are crucial to a successful conference.

Organising Committee

The current members are:

- Head of Committee: Dr Elke Thisted (Glencore Nikkelverk)
- Proceedings Editor: Prof. Kim Esbensen (KHE Consulting)
- Conference Secretary: Kristine Fuller-Gee (Eyde Cluster)
- Committee member: Ellen Nordgård-Hansen (NORCE)

Scientific Committee

- Head of Committee: Kim H. Esbensen (KHE Consulting, Copenhagen, Denmark)

- Roger Brewer (Hawai'i Department of Health, Oahu, USA)
- Stefan Brochot (CASPEO, France)
- Philippe Davin (Iteca Socadei, France)
- Simon Dominy (NOVO Resources Corp, Australia)
- Oscar Dominquez (BHP, Technical Centre of Excellence & Legacy Assets, Australia)
- Dominique François-Bongarçon (AGORATEK International Consultants Inc., British Columbia, Canada)
- Ralph Holmes (Mineral Resources, CSIRO, Australia)
- Li Huachang (B. Grimm, Beijing, China)
- Martin Lischka (HERZOG Maschinenfabrik, Germany)
- Geoff Lyman (Materials Sampling & Consulting, Brisbane, Australia)
- Pentti Minkkinen (Lappeenranta Lahti University of Technology, Finland)
- Richard Minnitt (School of Mining Engineering Witwatersrand University, Johannesburg, South Africa)
- Claudia Paoletti (European Food Safety Authority, Parma, Italy)
- Francis Pitard (Francis Pitard Sampling Consultants LLC, Broomfield, CO, USA)
- Rodolfo Romanach (University of Puerto Rico at Mayagüez, USA)
- Gerrit Van Hooydonck (Umicore Precious Metal Refining Hoboken, Belgium)

www.wcsb10.com