

## PREFACE: THE 2022 EDITION OF THE XXIV<sup>TH</sup> ISPRS CONGRESS

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### ICWG

#### 1. INTRODUCTION

We report key elements and figures related to the proceedings of the 2022 edition of the XXIV<sup>th</sup> ISPRS Congress. Despite the uncertainty and turmoil caused by the COVID-19 pandemic, the 2022 edition of the Congress is going to take place in person in Nice (France, 6-11 June 2022) and online, with a significant expected turnout: 1,600 participants have registered including 300 online participation as of April 25. The dynamic and unpredictable global health situation makes it difficult to predict participation.

This year, 959 papers were submitted to the congress, an increase compared to the 2021 edition (667 papers), but below the 2020 edition (1776 papers). Combining all three editions, the XXIV ISPRS Congress processed 3402 valid submissions, leading to the publication of 2263 papers (2020: 1054, 2021: 466, 2022: 743).

#### 2. KEY ELEMENTS

The International Program Committee (IPC) established in 2020 was kept identical to the 2020 and 2021 edition (Mallet et al., 2021), except for the replacement of the Program Chairs. The IPC includes the Congress Director, the ISAC Chair, the Program Chairs, the Chair of the ISPRS Student Consortium, Technical Commission Presidents, and Vice Presidents (TCP). To efficiently handle the large expected number of papers related to the Thematic Sessions (see below), Clément Mallet was nominated as *Thematic Session Chair* and integrated the IPC. The templates for paper submission (both abstracts and full papers) were identical to the 2021 edition: ISPRS website.

##### 2.1 Tracks & Submission Process

Authors had the possibility to submit their work through different tracks:

- **Technical Commission tracks (5):** one track for each Technical Commission, managed by the TCP and with topics corresponding to the TC Working Groups (WG);
- **Youth Forum:** managed by the ISPRS Student Consortium;
- **Thematic Sessions (13):** managed by the organizers of these sessions, either by invitation or open to everyone (more details in Section 2.3).

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The deadline was identical for both abstracts and full papers; see Section 2.2. The main difference remains the format (2 pages with authors' names v.s. 6-8 pages and anonymous, respectively).

The submission and review processes of each TC were monitored by the TC presidents with the help of the WG officers.

##### 2.2 Important dates

Due to logistical constraints, the conference had to take place more than a month earlier than the previous editions, in June instead of July. To keep the paper deadline after Christmas break, we had to shorten the review period even more than in the previous editions. Our priority remained to minimize the time between submission and publication and to give sufficient time to the authors of accepted abstracts to extend their paper.

- **January 17:** Deadline for abstracts & full papers;
- **February 17:** Notification of authors for abstracts;
- **March 4:** Notification of authors for full papers;
- **7 April:** Deadline for camera-ready papers.

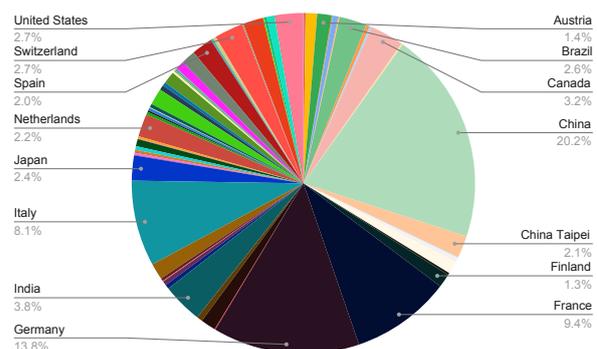


Figure 1. Papers were submitted by 1475 Authors from 77 countries.

684 reviewers from XX countries (Africa: 14 - Asia: 187 - Europe: 346 - North America: 64 - Oceania: 22 - South America: 23 - Middle East: 28, (Figure 2) provided 2107 reviews. Thanks to an extensive recruitment campaign, the number of reviewers increased by 34% compared to the 2021 edition.

##### 2.3 Thematic sessions

Thematic Sessions (TS) were created for the 2020 edition to promote emerging and cross-discipline topics not covered by

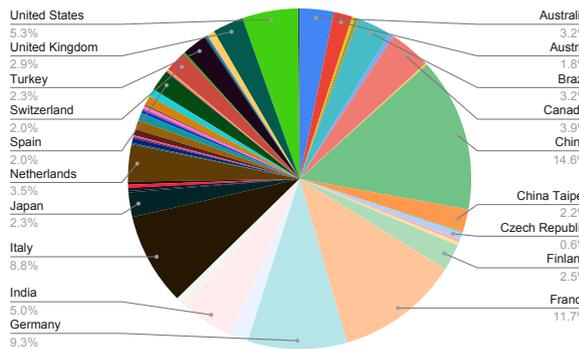


Figure 2. Papers were reviewed by 684 reviewers from 55 countries.

the ISPRS Working Groups (Mallet et al., 2020). For the 2022 edition of the Congress, 10 topics were selected from the TS of 2021 as well as 3 new ones, all listed in Table 1. The same deadlines and formats applied as for the main track. Several TS welcomed only invited papers.

Each TS was linked to a specific TC. The final papers are published in Volumes corresponding to their TC.

### 3. THE REVIEW PROCESS

#### 3.1 Organisation

The overall workflow is described in (Mallet et al., 2018). Depending on the number of papers, TCPs either directly handled the papers of their commission themselves (TC I, II, V and Youth Forum), or they decided to involve Area Chairs for reviewer assignment and decision taking (TC III and IV). The area chairs were selected from the Working Group officers. Thematic Session organizers directly acted as Area Chairs under the supervision of the Thematic Session chair.

In order to preserve the double-blind peer review process for full papers and to guarantee objectivity in decision making, papers co-authored by TCPs, Area Chairs, or TS organisers were directly handled by the Program Chairs.

#### 3.2 Change in Reviewing

This year and for the first time, the area chairs were tasked with writing meta-reviews to summarize the reviewers remarks and provide a definitive list of changes expected for the camera ready papers. Meta-reviews are standard practice in other fields such as computer vision or machine learning and fulfill multiple goals: (i) help the authors make sense of diverging reviews with possibly contradicting recommendations; (ii) clarify what is expected to change in the camera-ready version of the paper; (iii) explicitly acknowledge the reviewers work by the area chairs.

The IPC also decided to extend the status of "Conditionally Accepted" to both abstracts and full papers that showed significant, but fixable flaws in their scientific quality. This year, reviewers had the opportunity to signal that papers that need significant changes before they can be accepted by ticking a button. This prompted them to explicitly list the expected changes. Authors with conditionally accepted papers mostly followed the recommendation, demonstrating the efficiency of this status in improving borderline submissions.

Among the papers that were accepted but not published, 5 authors withdrew their articles, 71 did not upload a camera-ready

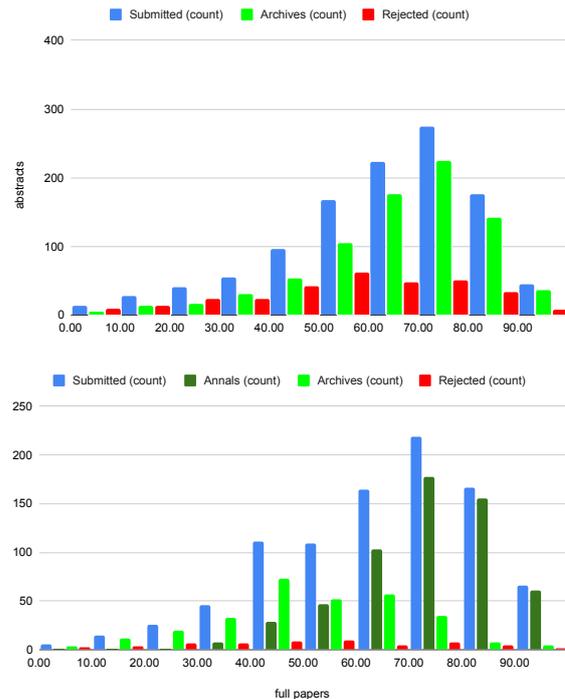


Figure 3. Review scores for abstracts (top) and full papers (bottom) according to their acceptance status. Rejected papers also include withdrawn contributions.

version in time, and 6 did not manage to produce a final version compliant with the recommendations.

#### 3.3 Plagiarism Detection

All accepted papers went through the iThenticate software in order to detect cases of plagiarism. The software provides a full report for each paper. In particular, it calculates a *similarity score* by comparing the contribution with the iThenticate proprietary database, databases of other content providers, and documents retrieved through standard Internet search. A global similarity score is retrieved by aggregating individual matching scores. The high scores corresponded to either a strong overlap with preprints (which does not violate the ISPRS policy on preprints) or with journal papers. In the latter cases, the authors accepted to withdraw their contribution from the proceeding and to present their work as a poster (4 papers total).

#### 3.4 Statistics

We received 959 submissions: 605 abstracts and 354 full papers. 743 articles were accepted (acceptance rate: 77.5%), including 412 abstracts (acceptance rate: 68.0%) and 354 full papers (93.5%). 524 papers are published in 5 volumes of the ISPRS Archives while 219 are published in the ISPRS Annals (22.8% of the submitted papers). The number of submitted and published papers increased compared to 2021, but remained below the first edition of the XXIVth Congress.

The papers were submitted by 1475 authors from 77 countries (Africa: 32 - Asia: 478 - Europe: 752 - North America: 87 - Oceania: 17 - South America: 43 - Middle East: 66), see Figure 1. Technical Commission III had the most submissions (35.1%, Figure 4). The ratio between continents and commissions remains stable with respect to the 2020 and 2021 editions.

<b>Title</b>	<b>Organiser(s) (Country/Organization)</b>	<b>TC</b>
Cultural Heritage Documentation	Michal Younan (PS) Fulvio Rinaudo (IT)	II
Deep learning for Satellite Image Time Series Analysis	Charlotte Pelletier (FR) Marc Russwurm (DE) Zhou Zhang (USA)	III
Digital Twins: Vision papers	Arzu Çöltekin (CH) Sidonie Christophe (FR) Victoria Rautenbach (ZA)	IV
EuroSDR theme session for National Mapping and Cadastral Agencies	Fabio Remondino (IT) Jon Mills (UK)	II
ISPRS Scientific and Educational & Capacity Building Initiatives	Songnian Li (ISPRS)	V
LULC Change Detection and Updating	Ammatzia Peled (IL) Yongian Zeng (CH)	III
News Approaches in Radio Sciences for Disaster Management and Remote Sensing	Tullio Tanzi (FR) Madhu Chandra (DE) Orhan Altan (TR)	III
Towards Resilient and Ubiquitous Navigation	Allison Kealy (US) Charles Toth (US)	I
Remote Sensing And The Geosciences – A Premier Field Of Data Science – A Session In Cooperation Between IEEE GRSS And ISPRS	Christian Heipke (DE) Paolo Gamba (IT)	–
Unconventional applications for geo-spatial deep learning	Matthieu Molinier (FI) Devis Tuia (NL)	III
Innovative Applications Of Satellite Data For Risk Management And Disasters	Hélène de Boissezon (FR) Andrew Eddy (UK)	–
Reality Capture And Quality Inspection In Digital Construction	Mehdi Maboudi (DE) Markus Gerke (DE)	I
SAM: Simultaneous Adjustment and Mapping Using Slam & Iso	Mohamed Mostafa (CA)	–

Table 1. Thematic Sessions of the 2022 edition of the ISPRS Congress. "–" means that no papers were published in the proceedings.

Track	Abstracts		Full papers			Published papers	
	Submitted	Archives	Submitted	Archives	Annals	% Archives	% Annals
<b>Total</b>	<b>605</b>	<b>412</b>	<b>354</b>	<b>112</b>	<b>219</b>	<b>54.6%</b>	<b>22.8%</b>
I	71	47	40	13	25	54.0%	22.5%
II	138	103	92	38	50	61.3%	21.7%
III	209	133	128	41	84	51.6%	24.9%
IV	99	84	49	7	38	61.5%	25.7%
V	8	7	4	0	3	58.3%	25.0%
Youth Forum	6	3	1	0	1	42.8%	14.3%
Thematic Sessions	78	35	41	13	18	40.3%	15.1%

Table 2. Detailed statistics for each track.

The most popular Working Groups per commission were: Mobile Mapping Technology (I.7, 19 papers), Point Cloud Processing (II.3, 32 papers), Agriculture and Natural Ecosystems Modeling and Monitoring (III.10, 52 papers), Spatial Data Analysis, Statistics, and Uncertainty Modeling (IV.3, 31 papers), Curriculum Development and Methodology (V.1 3 papers). The most popular thematic session was Cultural Heritage Documentation with 16 papers.

We collected 2.1 reviews per submission on average (2.0 reviews for abstracts and 2.4 reviews for full papers). Again, the evaluation criteria, which led to a score between 0 and 100, captures the main strengths and weaknesses of the contribution submitted and helped to smoothly discriminate the papers that should be rejected, accepted to the Archives or the Annals (Figure 3).

## 4. AWARDS

### 4.1 Young Author's Award

Based on the review process, each Technical Commission selected one article for this award. The awardees are as follows.

#### TC I: Sensor systems

- **Kyriaki Mouzakidou**, Davide Antonio Cucci, Jan Skaloud (CH) for "*On the Benefit of Concurrent Adjustment of Active and Passive Optical Sensors with GNSS & Raw Inertial Data*".

#### TC II: Photogrammetry

- **Corinne Stucker**, Bingxin Ke, Yuanwen Yue, Shengyu Huang, Iro Armeni, Konrad Schindler (CH) for "*Implicit City: City Modeling from Satellite Images with Deep Implicit Occupancy Fields*".

#### TC III: Remote Sensing

- **Mirjana Voelsen**, Maryam Teimouri, Franz Rottensteiner, Christian Heipke (DE, IR) for "*Investigating 2D and 3D Convolutions for Multitemporal Land Cover Classification Using Remote Sensing Images*".

#### TC IV: Spatial Information Science

- **Xiaodan Shi**, Haoran Zhang, Wei Yuan, Dou Huang, Zhiling Guo, Ryosuke Shibasaki (JP) for "*Learning Social Compliant Multi-modal Distributions of Human Path in Crowds*".

#### TC V: Education and Outreach

- **Juan Fernando Toro Herrera**, Daniela Carrion, Lorenzo Rossi, Mirko Reguzzon (IT) for "*The Open Database of Regional Models of the International Service for the Geoid*".

### 4.2 Outstanding Reviewers

The Technical Commissions appreciate the work done by all reviewers. They also want to distinguish the following reviewers as "Outstanding Reviewers" for their thorough reviews and deep involvement in the process:

- **TC I:** Petra Helmholtz (AU), Michael Cramer (DE), Stephan Nebiker (CH), Dorota Iwaszczuk (DE), Naser El-Sheimy (CA).
- **TC II:** Filiberto Chiabrando (IT), Michael Yang (NL), Eleonora Maset (IT), Stuart Robson (UK), Max Hoedel (DE), Loic Landrieu (FR).
- **TC III:** Michael Schmitt (DE), Timo Balz (CN), Ali Ozgun Ok (TR), Andrea Masiero (IT), Daniele Cerra (DE), Kiichiro Kumagai (JP), Megumi Yamashita (JP), Yixiang Tian (CN), Masataka Takagi (JP), Nicolas Audebert (FR), Hiroyuki Wakabayashi (JP), Jean-Baptiste Féret (FR).
- **TC IV:** Reza Mahmoud (IR), Costa Cidália (PT), Serena Coetzee (ZA), Stephan Winter (AU), Youness Dehbi (DE), Lucía Díaz-Vilariño (ES), Wei Tu (CN).
- **TC V:** Alfred Stein (NL), Andrea Masiero (IT), Rupert Mueller (DE), Cristiana Achille (IT), Jen-Jer Jaw (TW).

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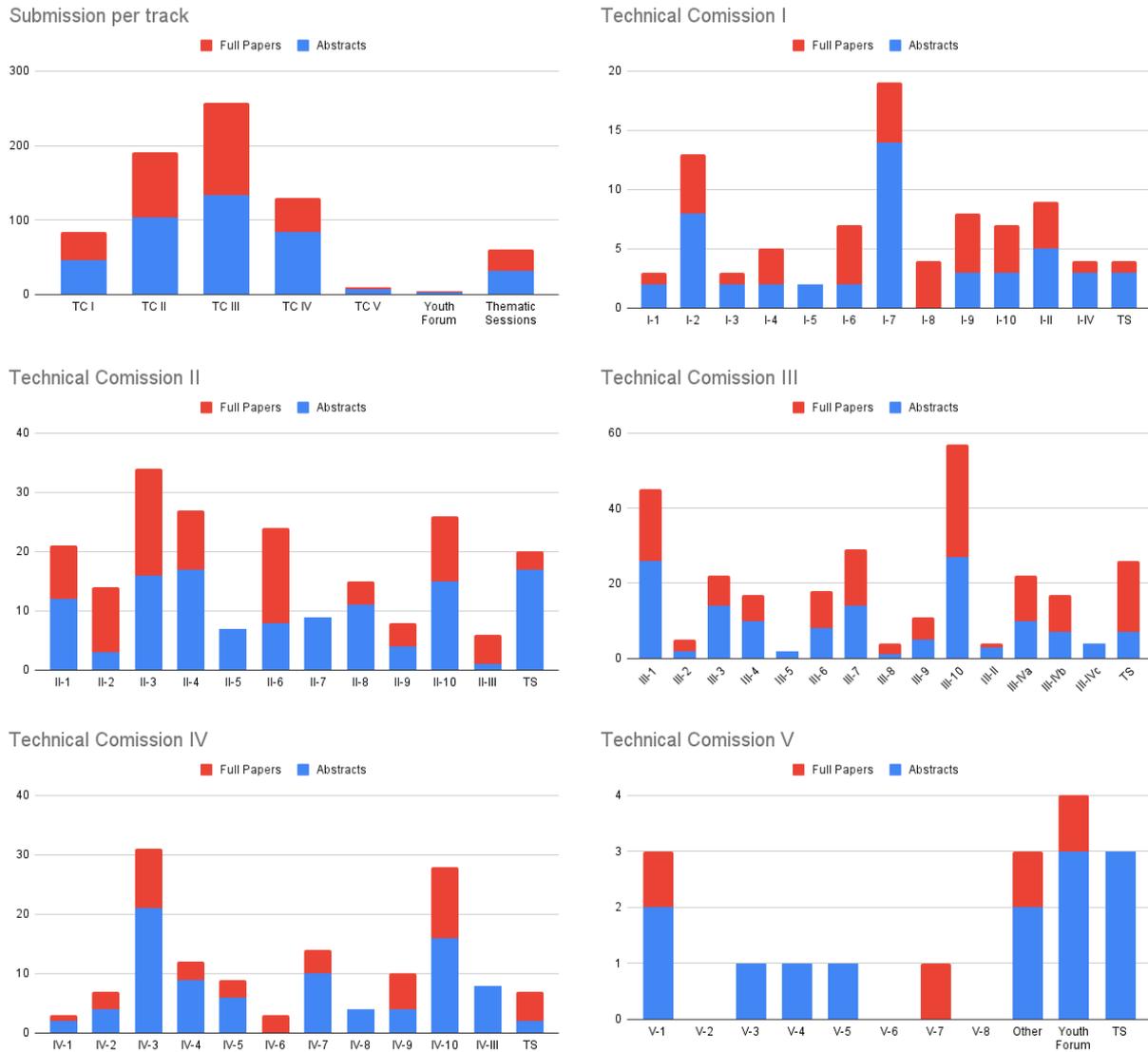


Figure 4. Paper submission statistics.