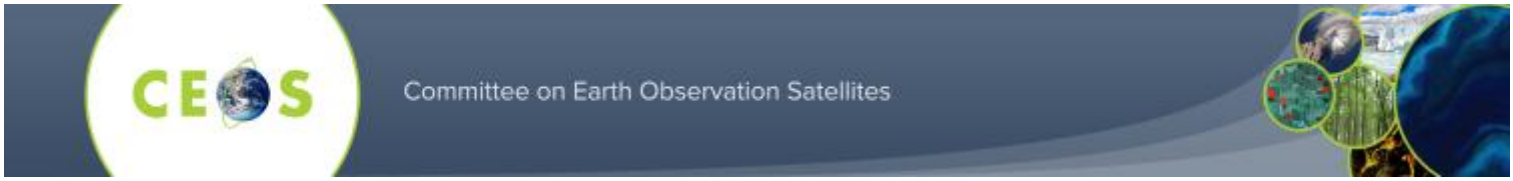


Evaluation Report for the

WGCapD & WGDisasters Distance Education Course:

A Webinar Series on Remote Sensing Technology for Disaster Management (Held April 6th – May 31st, 2015)

July, 2015

Table of Contents:

List of Appendices:

1. Background

The Committee on Earth Observation Satellites (CEOS) mission is to ensure international coordination of civil space-based Earth observations programs and promote exchange of data to optimize societal benefit and inform decision making for securing a prosperous and sustainable future for humankind. CEOS supports effective societal decision-making in the areas of climate monitoring and research; carbon observations, including observations to support the effective monitoring and management of the world's forested regions; food security; disaster risk management; biodiversity; capacity building; data availability and access; and more.

Disaster Risk Management (DRM) continues to gain political, economic, and geopolitical importance as disasters have caused increasing human and economic losses. These losses are only expected to grow as a result of increasing global urbanization (expected to double by the year 2050) and an increasing number of extreme events (expected to triple by the year 2100). Several major international organizations such as the World Bank, the United Nations International Strategy for Disaster Reduction (UNISDR), and the European Commission are focusing their efforts on responding to crisis events after they've occurred (disaster response). Just as it is important to continue improving space agency support to post-crisis response, it is also critical that space agencies invest in disaster preparedness, prevention and response.

Space agencies have initiated a series of actions to support DRM more efficiently, with a focus on Disaster Risk Reduction (DRR), by optimizing and better coordinating satellite Earth observations. While improvements to the International Charter for Space & Major Disasters or Sentinel Asia, for example, can offer enhanced post-crisis support, it's critical that space agencies invest in disaster preparedness and prevention. It was within this context that CEOS created the Working Group on Disasters (WGDisasters) at its 2013 Plenary meeting, following a preliminary study and prototyping phase initiated in 2012. One of the WGDisasters goals is to develop and strengthen relationships with stakeholder and end-users through a series of concrete actions addressing single-hazard Pilot projects (currently floods, volcanoes, and seismic hazards), multi-hazard projects (such as the Recovery Observatory and the Group on Earth Observations (GEO) Geohazard Supersites and Natural Laboratories (GSNL), and through CEOS capacity building activities for disaster managers.

The overarching goals of the WGDisasters are to increase and strengthen satellite Earth observation contributions to the various Disaster Risk Management (DRM) phases and to inform politicians, decision-makers, and major stakeholders on the benefits of using satellite Earth Observations in each of those phases.

The CEOS Working Group on Capacity Building & Data Democracy (WGCapD) (formed at the 25th CEOS Plenary in 2011) undertakes a variety of activities based on the four pillars of the Data Democracy Initiative, as depicted below:

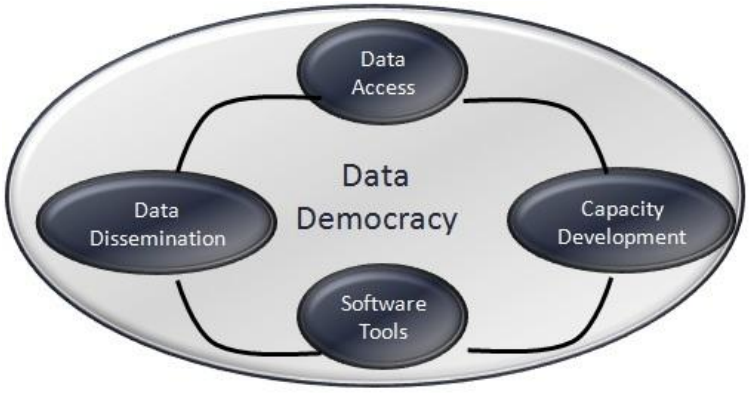


Figure 1: Data Democracy Pilars

The Data Democracy Initiative was introduced in 2008 during the CEOS Chairmanship of the South African Council for Scientific and Industrial Research (CSIR), based on the idea of provision of timely access to key data sets free of charge to build capacity worldwide, enhanced data dissemination capabilities, sharing of software tools, increased training, and technology transfer to end users. The first steps towards Data Democracy date back to 2004, when the Brazilian National Institute for Space Research (INPE) announced CBERS' (China-Brazil Earth Resources Satellite) free data policy. In 2008, the U.S. Geological Survey (USGS) and the National Aeronautics and Space Administration (NASA) announced unrestricted access, at no charge, to the Landsat archive, the world's most extensive collection of continuously-acquired remotely-sensed satellite imagery. Since then, CEOS Agencies have made great efforts to advocate and support this initiative. Universal availability of cost-free satellite data and images has revolutionized the use of Earth observations for decision-making.

The WGCapD builds upon this Initiative in an effort to increase the capacity of institutions in less developed countries for the effective use of Earth observation data for the benefit of society and to achieve sustainable development.

The **Distance Education Course: Remote Sensing Technology for Disaster Management** was a joint effort by CEOS Agencies, specifically the WGCapD and WGDisasters, toward:

- Disseminating remote sensing technology among disaster risk management practitioners with an interest in geospatial technology
- Providing wider and easier access to Earth observation data
- Increasing the sharing of software tools such as open source software and open systems interfaces
- Increasing data dissemination capabilities and transferring relevant technologies to disaster risk management practitioners

2. Course Outline

This Distance Education Course consisted of a series of introductory webinars addressing the use of remote sensing technology for Disaster Management (DM).

This course was unique in several ways, in that it:

- Was provided free of charge
- Provided access to expertise from space agencies around the world
- Linked participants to a global network of experts and policymakers
- Created awareness about international coordination bodies, such as CEOS, GEO, the United Nations Office for Outer Space Affairs (UNOOSA) and the International Charter for Space and Major Disasters
- Provided access to datasets and useful tools available from CEOS Agencies
- Helped attendees develop skills to aid in Disaster Management (DM).

The following WGCapD members participated as part of a core team for discussing the course syllabus, structure, and methodology:

- INPE
- Indian Space Research Organisation (ISRO)
- European Space Agency (ESA)
- National Oceanic and Atmospheric Administration (NOAA)
- United States Geological Survey (USGS)
- CEOS Systems Engineering Office (SEO)

.

The twelve instructor volunteers came from five CEOS Agencies (INPE, ISRO, NASA, ESA and USGS), universities, and training centers, such as the University of Waterloo (Canada), International Space University (ISU), and NASA ARSET (Applied Remote Sensing Training). (Appendix I)

English was the course's official language, but we may offer future courses in other languages as well.

The themes of the eight webinars were as follows:

1. Introduction to the Webinar Series
   April 7, 2015
   Instructors: Hilcea Ferreira / Kim Holloway / Brenda Jones
   a. Overview of CEOS/WGCapD
   b. Where CEOS Can Help: Datasets and Useful Tools
      i. The CEOS Earth Observation Handbook
      ii. The CEOS Systems Engineering Toolset (CEOS Visualization Environment, COVE)
   c. International Collaboration for DRM: International Charter for Space and Major Disasters

2. Introduction to Disasters: Causes, Effects, Monitoring, Mitigation, and Management. Methods of Hazard, Vulnerability, and Risk Assessment and the Role of Geospatial Data.
   April 14, 2015
   Instructor: Su-Yin Tan

3. Space-based Earth Observation Systems and their Applications for Hydro-meteorological Disasters (Floods)
   April 21, 2015
   Instructor: S.P. Aggarwal/ Amita Mehta / Ana Prados

4. Space-based Earth Observation Systems and their Applications for Geological Disasters (Earthquakes, Landslides, and Volcanoes)
   April 28, 2015
   Instructor: Antonios Mouratidis

5. Space-based Earth Observation Systems for Environmental Disasters (Forest Fires)
   May 5, 2015
   Instructors: Alberto Setzer and Fabiano Morelli

6. Real Time Monitoring of Global Precipitation from Space: New Technologies Applied to Heavy Rainfall Risk Reduction
   May 12, 2015
   Instructor: Daniel Vila

7. Concepts and Applications of Internet GIS and Sensor Web (Network of Sensors) for Disaster Management. Example of an open source tool (TerraMA^2. a Computational Platform for Developing Monitoring, Analysis, and Alert Systems)
   May 19, 2015
   Instructor: Laércio Namikawa

8. Rapid Mapping and Emergency Services: Success Stories - International Charter for Space and Major Disasters
   May 26, 2015
   Instructor: Brenda Jones

The course webpage, part of the CEOS website, provided a link to the online application form.

In March 2015, we advertised the course via the CEOS website, CEOS internal mailing lists, the Virtual Laboratory for Education and Training in Satellite Meteorology (VLab) Newsletter, the INPE mailing list, the ISU mailing list, the AfriGEOSS Initiative mailing list, and a special list of previous students from another course. We also advertised the course on CEOS social media channels (Facebook and Twitter).

We based the methodology of this course on online distance education program principles that allow participants to fully engage with program content, their peers, and their instructors via live lectures, question/answer through discussion forums, and feedback mechanisms. For self-assessment purposes, brief quizzes were available after each webinar.

Course materials included well-organized presentations, selected datasets, and various resources from the internet. We used a GoToWebinar license (funded by INPE), to hold one live classroom session per week, which we recorded and made available for download

afterward. We provided students with free and open access to a variety of resources, software tools, and datasets.

We used Moodle (Modular Object-Oriented Dynamic Learning Environment), hosted at INPE, for course administration, documentation, tracking, reporting, and delivery. Moodle helped us foster interaction between instructors and students with different backgrounds.

The pre-webinar and post-webinar phases of this course required significant effort. In the pre-webinar phase, instructors uploaded their learning materials to Moodle, prepared their course quiz questions, and developed their 1-hour lectures for presentation during the webinar (including 10 minutes for questions). The GoToWebinar System allowed us to interact with students well, with features such as registration, invitations, and reminders. We also held practice-sessions with course instructors one week before webinars began to familiarize them with the software, material, and organizational flow. The post-webinar phase included the compilation of surveys and questions to be posted on the discussion forum. We advised instructors to log in to Moodle during the week of their webinar at least once a day to answer student questions inside the Course Discussion Forum.

Although access to course materials required user authentication in Moodle, we later made course materials freely and publicly available on the Course Wiki, as motivated by the Open Educational Resources initiative.

In an effort to provide wider access to our learning materials, especially for users without consistently available access to high-speed internet, we contacted GEONETCast representatives to see if they could make them available through the GEONETCast Training Channels.

GEONETCast is a near real time, global network of satellite-based data dissemination systems designed to distribute space-based and in-situ data, metadata, and products to diverse communities. It is a system co-operated by the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), NOAA, the China Meteorological Administration (CMA), and the World Meteorological Organization (WMO). GEONETCast Broadcast Streams are composed by EUMETCast (coverage over Europe, Africa and the Americas), CMACast (coverage over the Asia Pacific region), and GEONETCast Americas (coverage over the Americas). EUMETCast and GEONETCast Americas Training Channels are now operational over Europe, Africa, and the Americas and deliver open access course materials to targeted audiences, which is ideal for distance learning courses. We sent detailed instructions to all students on how to access this material through these channels. (Appendix II)

3. Student Profiles

This course was open to participants from anywhere in the world. Its target audience included Disaster Management practitioners with an interest in geospatial technology, with a perquisite for elementary knowledge about remote sensing, Geographic Information Systems (GIS), and digital image processing.

144 students initially registered for the course, but, due to GoToWebinar space constraints, we could only accept 99 of them on a first-come first-served basis. The geographic distribution of course students by continent is shown in Figure 2:

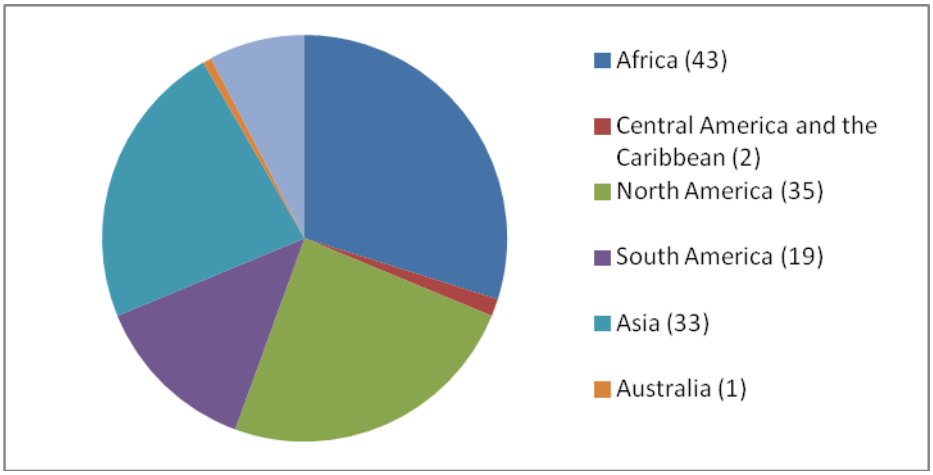


Figure 2: Geographic distribution of all 144 registrants

All students selected had bachelor's degrees (or higher) in a wide variety of disciplines: Geography, Science, Engineering, Agronomy, Geology, Physics, Hydrology, Computer Science, Meteorology, and more. Forty-two students held a Master of Science degree, and 11 held doctoral degrees. Most of them either had remote-sensing and GIS specializations or had been working in the field for many years.

Student affiliations include universities, United Nations Regional Centers, Regional Centers, Government, Private Sector and Non-Governmental Organization (NGO). A complete list of student affiliations is available in Appendix III.

Most students were interested in taking the course for professional, academic and personal development, wanting to deepen their knowledge on the use of satellite imagery and tools for disaster management, improve their understanding of remote-sensing technology, and stay up-to-date with the latest trends and applications in this important field (Figure 3).

Figure 3: Topics of interest for students that took this course

4. Overall Results

The instructors of Webinar Session 5 were unable to teach their session due to an emergency. Their presentation was recorded and made available on Moodle, but this was only done on Thursday of that week. Since students would not have much time to interact with instructors for questions and answers, there was no quiz for this session. The Moodle log showed that 25 students accessed the recording. Unfortunately, the cancellation of the live webinar was disruptive, preventing interaction on the subject in the Course Discussion Forum.

Webinar session attendance decreased as the course progressed. By the end of the course, only 46 out of the 99 enrolled students received a Certificate of Participation. Six students who participated in the CEOS International E-learning Course on Introduction to Remote Sensing Technology (2013) also enrolled for this course and successfully completed it.

Initially, the criterion for receiving the Certificate was attendance for all live webinar sessions. However, we later decided that ongoing participation in quizzes and the discussion forums also demonstrated active participation, so we decided to provide the Certificate to students who attended at least four live sessions and attempted at least four quizzes. Throughout the course, many students sent emails apologizing for not attending specific sessions due to their job duties.

Figure 4 provides more detail about webinar attendance. Notice that some students did not attend the live sessions, but did access the recordings and take the quizzes afterwards.

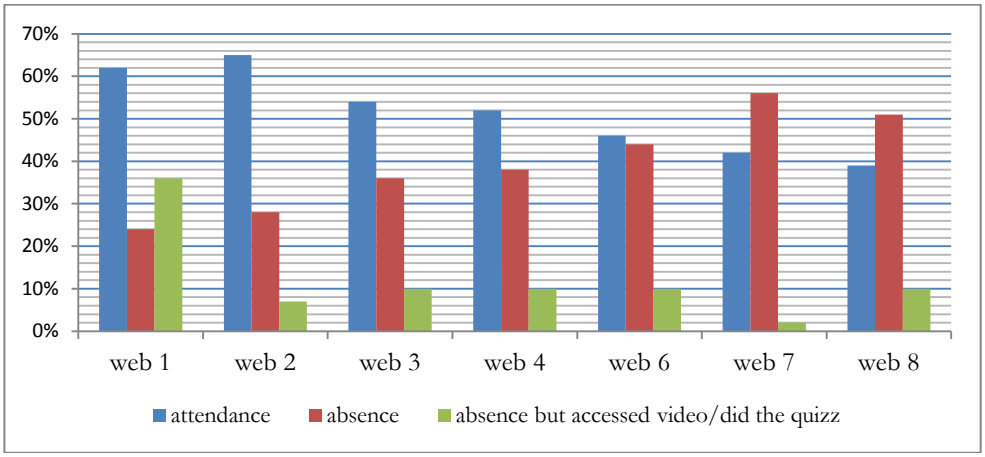


Figure 4: Webinar overall attendance

The quizzes were optional and were meant for self-assessment purposes only. Table 1 shows the number of students that took the quizzes (only nine students took all the quizzes, and the average score was 78.9).

Table 1 – Number of students that took each quiz

Quiz 1	Quiz 2	Quiz 3	Quiz 4	Quiz 6	Quiz 7	Quiz 8
30	30	37	41	24	23	18

We asked students to participate in a follow-up survey on Moodle to evaluate the effectiveness of the course and receive feedback on how to improve the course. 46 students (37 that successfully completed the course and nine that did not) completed the survey, which included yes/no, multiple choice, and open-ended questions. (Appendix IV)

The successful participants received a congratulations email together with the attached Certificate of Participation. Certificates were issued by the CEOS SEO**.** The instructors also received a Certificate of Appreciation. (Appendices V & VI)

Figure 5 shows the number of students (organized by country) who received the Certificate.

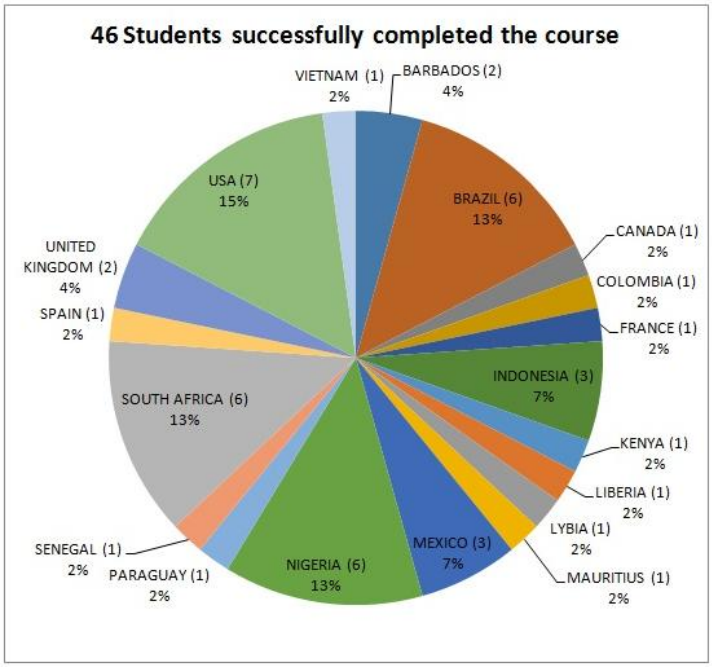


Figure 5: Successful students by country

5. Compiled Results from Student Surveys

The results of our study reveal that most students (80%) Strongly Agreed or Agreed with the statement "This course met my expectations." 18% of students were Neutral about the statement, and 2% of the students disagreed with the statement. Furthermore, the majority of participants gave the course high scores: Excellent (28%) and Very Good (50%). 18% of the audience evaluated the course as Good, and 4% evaluated the course as Poor or Fair.

It is interesting to observe that for most students, the objectives of the course were clear (almost 85%); this percentage could explain their level of satisfaction.

Another very important detail is the fact that the course increased the level of interest in the subject for more than 90% of the students.

Figures 6, 7, 8, and 9 show the survey results, in detail.

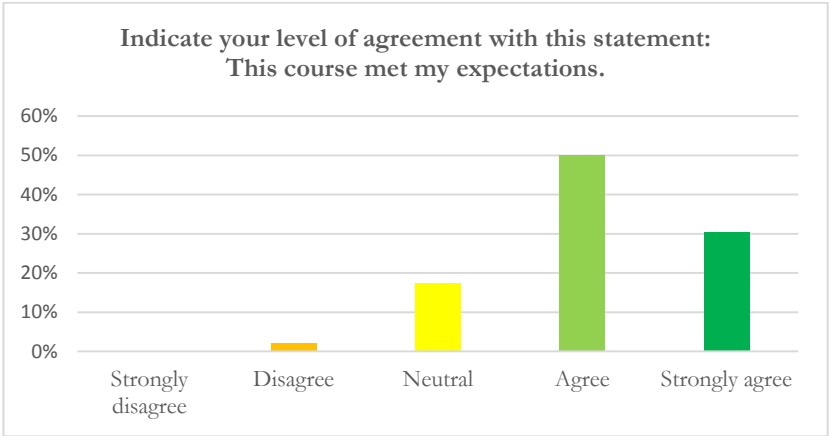


Figure 6: Expectations

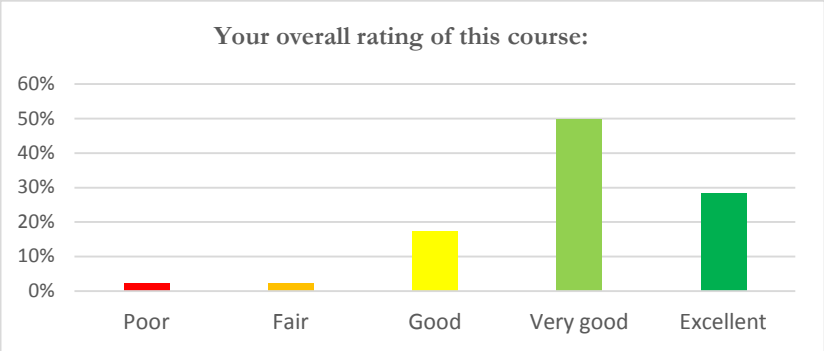


Figure 7: Rating

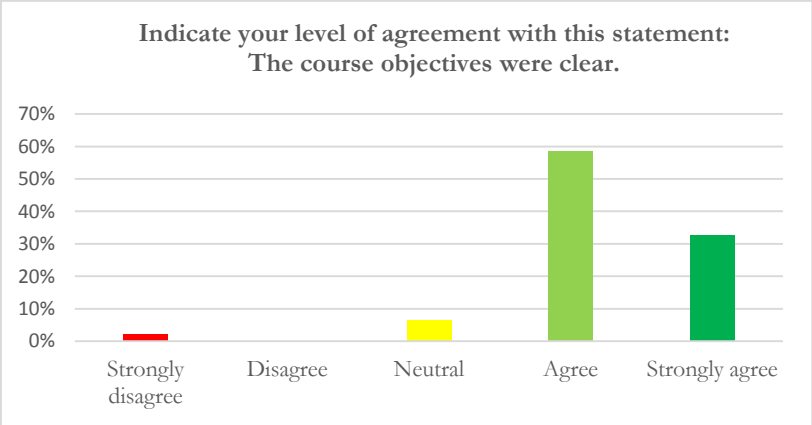


Figure 8: Objectives

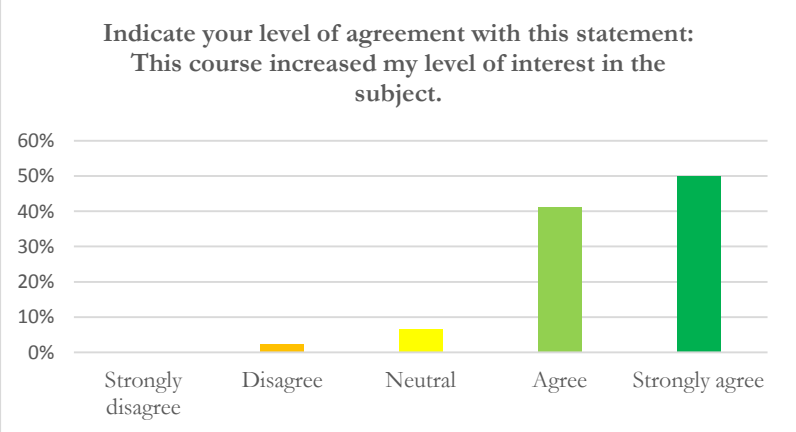


Figure 9 –Interest in the subject

The students also evaluated the software used during the course (Moodle and GoToWebinar), the learning materials (presentations, quizzes, and tutorials), the instructors´ performances, and the course contents. In general, all of these items scored very well, most of them scoring Good, Very Good, and Excellent. Figure 10 explains these categories in more detail.

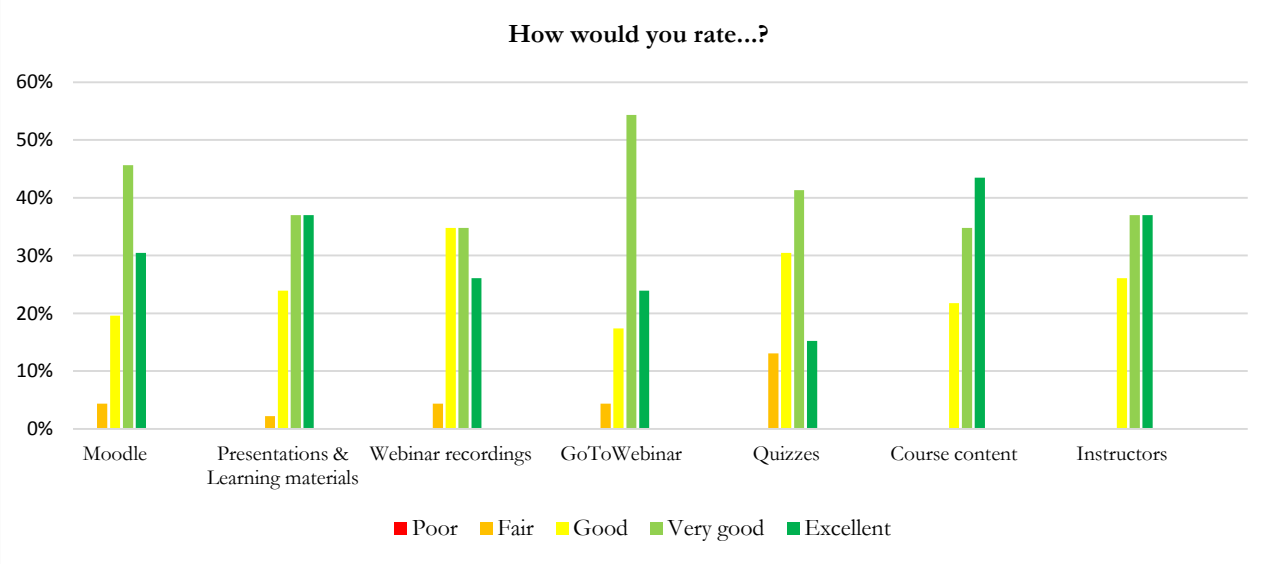


Figure 10: Course Evaluation

In order to receive more specific feedback from the students, there was an open-ended question in the survey: Which parts of the course did you find most/least helpful? The answers are summarized in Table 1.

Table 1 – Most & Least Helpful of the Webinars

Most helpful	Least Helpful
All, the whole course was so informative.	None, all of them were very helpful
The review of the types of data publicly available. Some ideas on how to get it and how to use it. I have appreciated this opportunity.	The quizzes were an ok form of self-assessment. However, I didn't like having to wait to get the correct answers.
The experience of the instructors and the exchange of contacts with the other participants.	Just to say there were not African examples of studies applicable to Africa.
Mr. Aggarwal presentation was extremely informative, perhaps the most. Antonios´ as well.	
I find most helpful the parts of the course that give us information about access of data.	
The recordings.	
The case studies.	
The explanations of the experts when giving the presentation.	
The explanation of the different platforms using remote sensing and satellite imagery.	
The last module on International Space Charter was of great interest to me.	
Module 3 and Module 6 were the most useful modules	
Module 5 (forest fire)	

For 26% of the students, this was their first online education experience, and 63% said they preferred online courses over classroom courses. The main advantage mentioned for taking online courses was the ability to attend the lectures without having to travel to the class, saving money and time that would otherwise be spent on transportation. A small number of students reported internet connection issues, but since the online sessions were recorded, they were able to download and watch them later.

While, in general, the feedback was positive, participants also had some suggestions and comments. The issues most commented upon were related to requests for more hands-on activities using a GIS. The suggestions for improvement are listed below:

Course Organization:

- Would be great to consider the use of speech translations for those who do not speak English very well, either professors or students.
- More time, including some practice exercises and more literature and learning materials.
- More time for questions at each session.

Course Contents:

- Provision of some assignments to work on using the software discussed in the Moodle.
- More practical examples and tutorials on software used to get required results that matter.
- It would be nice to see further demonstrations and techniques in software used for analyzing the data.
- Provide additional reference resources and/or e-books.
- It would have been useful to encourage more interaction among the participants. A module that provides an introduction to image processing.
- Would love to see disaster response scenario event practical videos.
- Practical classes on programming TerraMA^2.
- If hands-on training on remote sensing and GIS software are included, would greatly improve the course.
- Include real processing of data instead of results. Demonstrate how to derive maps and products.
- Perhaps to provide more in depth quizzes without the restriction of 3 attempts. Answers should also be readily available without having to wait.
- I prefer class activity instead of quiz.
- The quiz questions could be more technical.

100% of the students said that they would recommend this or a similar webinar series to a colleague/friend to attend in the future.

After each webinar session, a survey asking if the subject was useful was sent to the audience. Despite the high levels of no response, the ones that responded found each webinar useful. Figure 11 reflects these surveys.

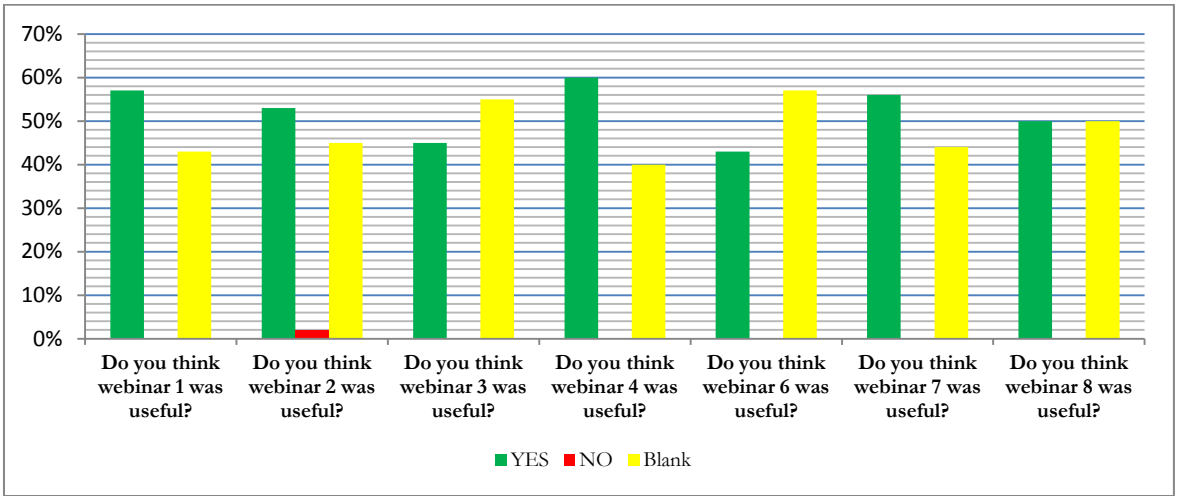


Figure 11: About the usefulness of each Webinar

Though most students agreed on the usefulness of each webinar, they individually recommended some topics to be added in future editions of the course:

- Using remote-sensing for agriculture, especially by small-scale farmers
- Newly available satellites and accessing historical data archives
- Early warning
- Crowd-sourcing and disaster management
- Nowcasting of meteorological disasters
- Flood monitoring and simulations
- Software and techniques used for analyzing the data
- Another session about the use of bandwidth and channel in the satellite image
- Applications of Remote-sensing and GIS in flood management.
- Image processing/analysis
- Modeling of remote-sensing data for disaster management
- Applications of GIS for epidemiology
- Real Time Monitoring of Forest Fires
- Image-processing
- Oil spills, disaster project management, disaster chain of command
- Remote-sensing for disease outbreaks and public health issues. If we have a major disaster, it can lead to a disease outbreak, so how can we handle such advanced remote-sensing techniques for disaster management
- Remote-sensing in municipal waste management
- Radar applications in natural resources monitoring
- Digital signal processing

The course website met the expectations of 100% of the students. Figure 12 shows how students became aware of the course.

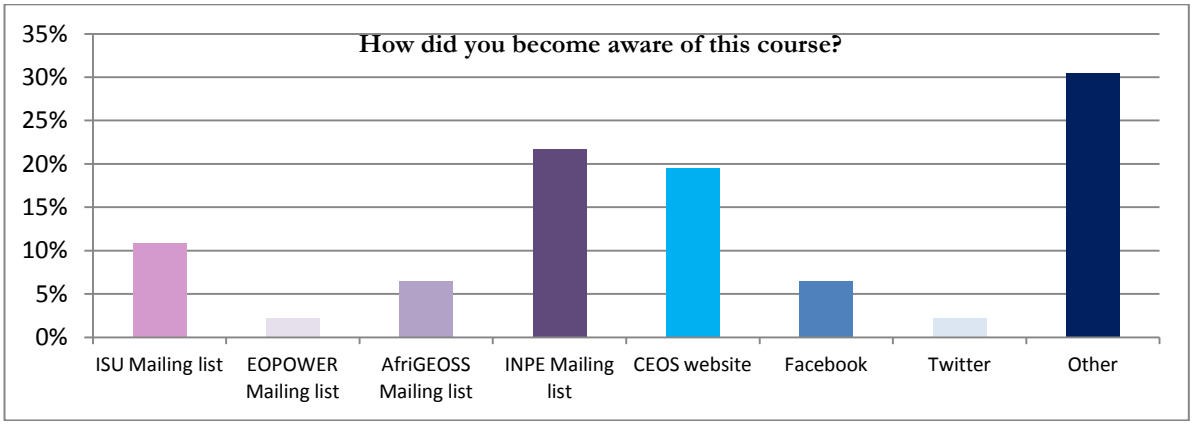


Figure 12: Course announcement

6. Lessons Learned and Final Remarks

Overall, this course successfully provided students with access to a multicultural educational experience in Remote Sensing as Applied to Disaster Management. The course accomplished the following goals:

- Created awareness about international coordination bodies, such as CEOS, Group on Earth Observations (GEO), and the International Charter for Space and Major Disasters as major sources of data for DM.
- Increased knowledge about data availability through the International Charter during a disaster and how it can be activated.
- Increased knowledge about using satellite Earth observation data from different sources for DM.
- Increased knowledge about how to determine which specific GIS capabilities and data types are required to support emergency management work before, during, and after a disaster strikes.
- Improved student ability to advise decision makers about how to use space technology for DM.

Although it was emphasized (in the announcement, course syllabus, etc.) that this was a distance course that would integrate webinar technology with a longer-term online learning environment (Moodle), student interaction via the discussion forums (the main tool for asynchronous communication) was very low. This may have resulted from a misconception about the course methodology. Webinars (virtual seminars), by definition, differ from online courses in that online courses span a greater time frame and engage students in continuous online discussion threads about topics and assignments. However, due to low levels of interaction, our goal to generate new contacts and interaction between students and other professionals worldwide was not achieved.

The biggest challenges faced by instructors during the webinar sessions were centered on how to keep the students engaged in the online learning setting (e.g. appropriate presentation length and format). Instructors used polls and surveys during the webinars in an effort to prevent students from losing focus and engaging too heavily in unrelated tasks during the

webinars (i.e. multitasking). Polls and surveys also help instructors gauge how well the students are understanding the information (or how much they already know).
For future courses in this format, we should consider limiting webinar lectures to 45 minutes in length to allow more time for questions and interaction with students.

It was essential to have a moderator present in each webinar to help troubleshoot webinar technology without distracting the instructors. The moderator also helped manage questions from students during the session.

The feedback and suggestions from students reflect their need for more hands-on activities and software/real scenarios demonstrations. We will consider this feedback as we plan future courses.

Finally, we created an image to represent worldwide impact and diverse cultural reach of this course. (Appendix VII)

Thanks to all Instructors and Contributors who made this distance course possible!

Contact Course Coordinators:

INPE: Hilcéa Ferreira (hilcea@dpi.inpe.br)
ISRO: S.P. Aggarwal (spa@iirs.gov.in)

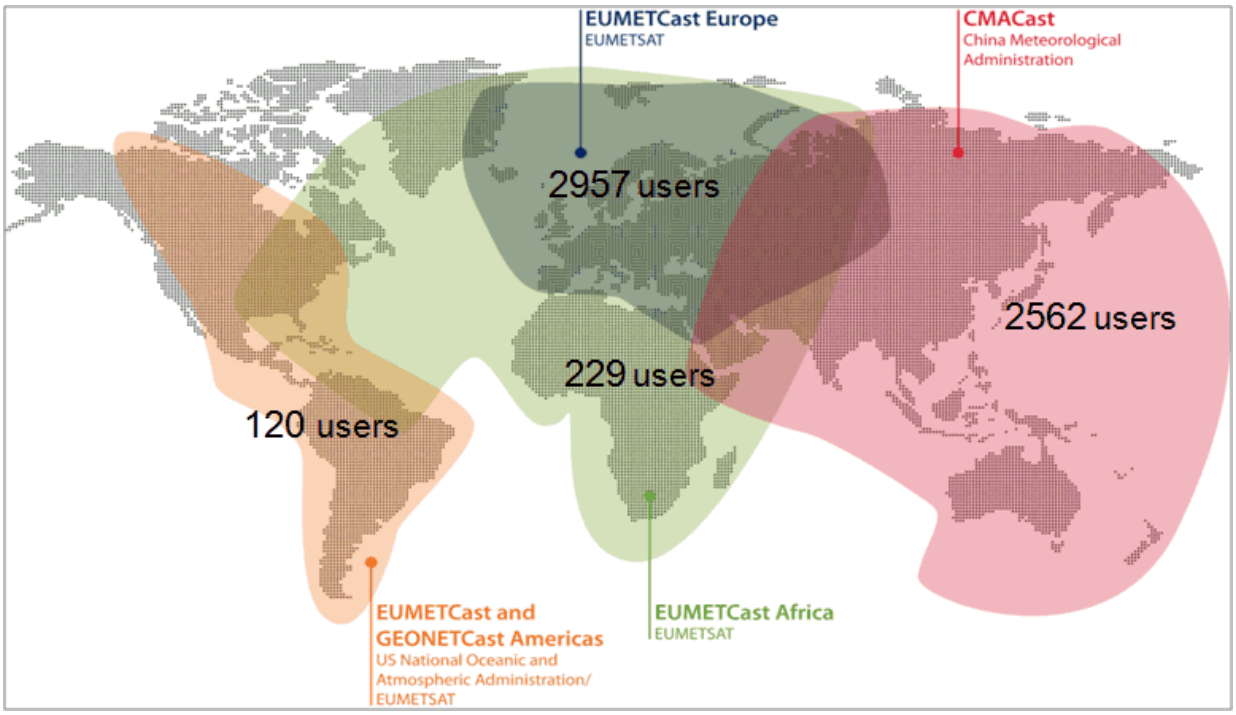
APPENDIX I

Team of Instructors and
Contributors

NAME	INSTITUTION	ROLE
Hilcéa Ferreira	**INPE**	**Coordinator/Instructor**
S.P.Aggarwal	**IIRS/ISRO**	**Coordinator/Instructor**
Marie-Josee Bourassa	**CEOS CEO**	**Contributor**
Kim Holloway	**CEOS SEO**	**Contributor/Instructor**
Guy Aube	**CSA**	**Contributor**
Antonios Mouratidis	**ESA**	**Instructor**
Ivan Petiteville	**ESA - WGDisasters**	**Contributor**
Jesus A. G. Bernal	**INAOE/CRECTEALC**	**Contributor**
Claudia Lucaccioni	**INPE**	**Moodle Tutor**
Daniel Vila	**INPE**	**Instructor**
Alberto Setzer	**INPE**	**Instructor**
Fabiano Morelli	**INPE**	**Instructor**
Laercio Namikaya	**INPE**	**Instructor**
Su-Yin Tan	**University of Waterloo and ISU(International Space University)**	**Instructor**
Ana Prados	**NASA**	**Instructor**
Amita Mehta	**NASA**	**Instructor**
Nancy D. Searby	**NASA**	**Contributor**
Phila Sibandze	**SANSA**	**Contributor**
Lorant Czaran	**UNOOSA**	**Contributor**
Brenda Jones	**USGS - WGDisasters**	**Instructor**
Eric Wood	**USGS**	**Contributor**

APPENDIX II

GEONETCast Global
User Community



APPENDIX III
Candidate Affiliations

Affiliation	Description	# of Students
Universities	Abia State University, Nigeria	2
	Abubakar Tafawa Balewa University, Nigeria	2
	Abubakar Tatari Ali Polytechnic, Nigeria	2
	Botswana International University of Science& Technology	2
	Seoul National University, South Korea	1
	University of Alabama, United States	2
	International Space University (ISU), France	2
	NOVA Information Management School (NOVA IMS), Portugal	1
	University of Louisiana, United States	1
	University of Venda, South Africa	1
	University of Rwanda	1
	Federal University of Technology, Akure –Nigeria (FUTA)	3
	University of Omar Al Muktar, Libya	1
	Pwani University, Kenya	1
	Federal University of Rio Grande do Sul, Brazil	1
	University of Campinas, Brazil	1
	University of Texas, United States	1
	Pontifical Catholic University of Rio de Janeiro, Brazil	1
United Nations Regional Centers	African Regional Centre for Space Science and Technology Education in English (ARCSSTE-E)	6
	Regional Centre for Space Science and Technology Education for Latin America and the Caribbean (CRECTEALC)	4
	Food and Agriculture Organization of the United Nations, Paraguay	1
Regional Centers	Asian Disaster Preparedness Center, Bangkok-Thailand	2
	Caribbean Institute for Meteorology and Hydrology	4
	International Centre for Integrated Mountain Development (ICIMOD), Kathmandu - Nepal	2
	Regional Centre for Mapping of Resources for Development (RCMRD), Nairobi -Kenya	1
Government	African Union Commission	2
	Agency for Meteorology Climatology and Geophysics of Republic Indonesia (BMKG)	5
	Agrhymet Regional Centre, Niamey - Niger	2
	Agricultural Research Council, Pretoria – South Africa	4
	Badan Meteorologi Klimatologi dan Geofisika, Indonesia	3
	National Center for Natural Disasters Monitoring and Alert, Brazil (CEMADEN)	4
	Centre de Suivi Ecologique, Senegal	2
	Gabonese Space Agency (AGEOS)	1
	U.S. Global Change Research Program (USGCRP)	1
	Kenya National Space Secretariat (NSS)	1
	Government of India	1
	National Oceanic and Atmospheric Administration, United States (NOAA)	1
	State Emergency Management Agency (SEMA-Missouri, United States)	1
	National Aeronautics and Space Administration, United States (NASA)	3
	St. Johns Rivers Water Management District, Florida – United States (SJRWMD)	1
	National Institute of Astrophysics, Optics and Electronics, Mexico (INAOE)	1
	Liberia Meteorological Service	1
	Institute of Environment and Water Resources, Brazil (INEMA)	2
	National Geospatial-Intelligence Agency (NGA), United States	4
	Institute of Hydrology, Meteorology and Environmental Studies of Colombia (IDEAM)	1
	The Vietnam Institute of Meteorology, Hydrology and Environment (IMHEN)	2
	United States Geological Survey (USGS)	2
	Ministry of Cities, Brasília- Brazil	1
	Meteorological Service of Canada	1
	NORAD and USNORTHCOM, Colorado - United States	1
	U.S.-Federal Government	1

APPENDIX III (cont.)
Candidate Affiliations

Affiliation	Description	# of Students
Private Sector	DMC International Imaging, Guildford –Surrey, UK (DMCii)	8
	Cerpedel association, Cameroon	2
	Umvoto Africa (Pty) Ltd	1
	Orbital Zone, Durban - South Africa	2
	Telespazio, Rome - Italy	1
	SREE MUDRANALAYA TECHNOLOGY PVT LTD, Kolkata - India	1
	Jacobs Technology, Houston - United States	1
	GEO Data Design - Geospatial Solutions for Africa	1
	Locate IT Ltd, UK	1
NGOs	European Association of Geoscientist & Engineers (EAGE)	1
	eHealth AFRICA	1
TOTAL		115

Note: 29 students did not fill out this information on their registration forms.

APPENDIX IV

Questionnaire for Students

1. Were you informed in advance about the content of the course and the way it would be organized?
   ( ) Yes
   ( ) No
2. How did you become aware of this course?
   ( ) ISU Mailing list
   ( ) EOPOWER Mailing list
   ( ) AfriGEOSS Mailing list
   ( ) INPE Mailing list
   ( ) CEOS website
   ( ) Facebook
   ( ) Twitter
   ( ) Other

   If Other, please explain:
3. Did the course website meet your needs/expectations?
   ( ) Yes
   ( ) No
4. Was this your first online education experience?
   ( ) Yes
   ( ) No
5. If you have had previous online education experiences, please list any Learning Management Systems (such as Moodle) that were used:

6. Which kind of course do you prefer?
   ( ) Online courses
   ( ) Classroom-course
7. How would you rate Moodle as a Learning Management System?
   ( ) Poor
   ( ) Fair
   ( ) Good
   ( ) Very good
   ( ) Excellent
8. How would you rate the webinar presentations & learning materials?
   ( ) Poor
   ( ) Fair
   ( ) Good
   ( ) Very good
   ( ) Excellent
9. How would you rate the quality of the webinar recordings?
   ( ) Poor
   ( ) Fair
   ( ) Good
   ( ) Very good
   ( ) Excellent
10. How would you rate the live webinar sessions given using GoToWebinar?
    ( ) Poor
    ( ) Fair
    ( ) Good
    ( ) Very good
    ( ) Excellent
11. How would you rate the quizzes?
    ( ) Poor
    ( ) Fair
    ( ) Good
    ( ) Very good
    ( ) Excellent

12. How would you rate the course content?
    ( ) Poor
    ( ) Fair
    ( ) Good
    ( ) Very good
    ( ) Excellent
13. How would you rate the instructors?
    ( ) Poor
    ( ) Fair
    ( ) Good
    ( ) Very good
    ( ) Excellent
14. Which parts of the course did you find most/least helpful?
15. Was the amount of time you spent taking this course appropriate for the amount of information you learned?
    ( ) Yes
    ( ) No
16. Indicate your level of agreement with this statement: The course objectives were clear.
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neutral
    ( ) Agree
    ( ) Strongly agree
17. Indicate your level of agreement with this statement: This course increased my level of interest in the subject.
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neutral
    ( ) Agree
    ( ) Strongly agree
18. Indicate your level of agreement with this statement: This course met my expectations.
    ( ) Strongly disagree
    ( ) Disagree
    ( ) Neutral
    ( ) Agree
    ( ) Strongly agree
19. Your overall rating of this course:
    ( ) Poor
    ( ) Fair
    ( ) Good
    ( ) Very good
    ( ) Excellent
20. Please provide your suggestions for how to improve this course:
21. Please reflect on your own performance throughout this course. Based on what you have learned, how would you rate/grade your performance on a scale of 1 (Poor) to 10 (Excellent)?
22. Would you recommend your colleague/ friends to attend the similar webinar if organized in future?*
    ( ) Yes
    ( ) No
23. Would you recommend any new topic to be added in the webinar series?*
    ( ) Yes
    ( ) No
24. Which topic would you recommend to add?

APPENDIX V

Student Certificate of Participation Template

Certificate of Participation

This certificate is awarded to

<name of student>

for participating in the

Distance Education Course:
Webinar Series on Remote Sensing Technology for Disaster Management

from April 6th to May 31st, 2015

organized by the

Committee on Earth Observation Satellites (CEOS)
Working Group on Capacity Building & Data Democracy (WGCapD).

This course consisted of a comprehensive series of eight introductory webinars that addressed the use of Remote Sensing Technology for Disaster Management.

Hilcéa Ferreira
Course Coordinator
National Institute for Space Research (INPE)

S.P. Aggarwal
Course Coordinator
Indian Space Research Organisation (ISRO)

APPENDIX VI

Instructor Certificate of Appreciation Template

Certificate of Appreciation

We hereby express our sincere gratitude to

<name of instructor>

in recognition of your commitment, dedication, and work as a teacher for the

Distance Education Course:
Webinar Series on Remote Sensing Technology for Disaster Management
April 6th to May 31st 2015

organized by the

Committee on Earth Observation Satellites (CEOS)
Working Group on Capacity Building & Data Democracy (WGCapD).

This course consisted of a comprehensive series of eight introductory webinars that addressed the use of Remote Sensing Technology for Disaster Management.

Hilcéa Ferreira
Course Coordinator
National Institute for Space Research (INPE)

S.P. Aggarwal
Course Coordinator
Indian Space Research Organisation (ISRO)

APPENDIX VII

Webinar Series Image

● Students who attended the course

★ Students who attended the course and obtained the certificate