Final workshop report

GOFC-GOLD Regional Networks

Joint MedRIN and SCERIN Virtual Capacity Building Workshop on Earth System Observations: June 15-17, 2021

The Joint M&S virtual Capacity Building Workshop workshop was organized by MedRIN and SCERIN leaders and was open to all GOFC-GOLD RINs.

The virtual hosts of the workshop were:

- Clay Oboth and Jon Padgham; START International
- The organizers included:
    - SCERIN: Petya Campbell, Jana Albrechtová, Lucie Kupková;
    - MedRIN: Vince Ambrosia, Ioannis Gitas, Diofantos G. Hadjimitsis

Environment: online ZOOM meeting faciliatated by Clay Oboth

The Joint M&S CB workshop was held during three consecutive days with timing convenient to U.S. and European participants.

The web page of the Joint M&S CB workshop created by Clay Oboth, START:
https://gofcgold.umd.edu/meetings/joint-medrin-and-scerin-virtual-capacity-building-workshop

Description of the Joint M&S CB workshop:

The final Agenda of the Joint M&S CB workshop (see ***Appendix 1***) was circulated among all members of the GOFC-GOLD RINs in advance and is available on the webpage for the Joint MedRIN & SCERIN CB Workshop created by Clay Oboth (START). The background information on all keynote and invited speakers and representatives of SCERIN and MedRIN was prepared in advance of the Joint M&S CB Workshop and it is provided in ***Appendix 2***. Abstracts of keynote and invited lectures are given in ***Appendix 3***. Abstracts for PR (pre-recorded) talks together with links to the PR talks are given in ***Appendix 4***. The questions for the real-time survey, given in Mentimeter and taking place on Day 3 of the meeting, are provided in ***Appendix 5***. A full list of participants of for Day 1-3 is provided in ***Appendix 6***.

A. Technical Summary of the Worksop

Agenda of the meeting during the DAY 1, June 15, 2021 was:

Time (EST)	Time (EET)	**June 15, 2021** *Agenda Lead & Introductions:* ***Jana Albrechtova*** *(SCERIN)*
7:30	*14:30*	*Registration and equipment tests, PR talks viewing: on-your-own play talks 1-6; Q on the Chat, A 11:30*
8:00	15:00	Opening: Logistics (*Clay Oboth*, START), Workshop Goals and Agenda (Jana Albrechtova, SCERIN)
8:15	15:15	Welcome address: Nikolaos Papaioannou, Rector, Aristotle University
		The role of Lab of Forest Management and Remote Sensing (*Ioannis Gitas, Aristotle University*)

		The role of Aristotle University in the Region (*George Zalidis, Aristotle University*)
8:40	15:40	NASA LCLUC Update (*Garik Gutman*, NASA Headquarters, Washington, DC)
9:00	16:00	GOFC-GOLD and the Regional Networks *(Krishna Vadrevu, NASA/MSFC)*
9:20	16:20	MedRIN Status, Goals (*Gitas/Ambrosia/Hadjimitsis*, MedRIN Coordinators)
9:35	16:35	SCERIN Status, Goals (*Albrechtova/Campbell/Kupková*, SCERIN Coordinators)
9:50	*16:50*	*Q & A for plenary talks, from the Chat (Lucie Kupková)*
10:00	*17:00*	*Break (10 min, PICTURE)*
10:10	**17:10**	**Healthy Soils (*Luca Montanarella*, Joint Research Center, EU) invited**
10:30	**17:30**	**Space Technology to the Power of Hundreds (*Agnieszka Lukaszczyk*, Planet) invited**
10:50	17:50	*Q & A for invited talks*
11:00	17:00	Joint issues/activities for MedRIN* & SCERIN *(Vince Ambrosia, MedRIN; Petya Campbell, SCERIN). * Questions for survey (Vince) – survey and outcomes on day 3 (Vince/Kyriacos)*
11:20	*18:20*	*Discussion of M&S joint activities; Q & A from the Chat (Leads: Vince & Petya, ALL)*
11:40	*18:40*	***Discussion of PR talks**; Q & A on the Chat (Leads: Lucie/Petya; ALL)*
12:15	19:15	Objectives for Day 2, Closing of the day *(Jana, Garik, Diofantos, Ioannis, John, Petya, Vince)*
12:30	*19:30*	*Adjourn*

Day 1 of the Joint M&S CB Workshop focused on the introduction of GOFC-GOLD activities in general and the two GOFC-GOLD networks MedRIN and SCERIN specifically, setting the background for possible collaboration of joint activities between the two networks. Since the length of the active sessions of the workshop was limited by time so as to be accessible for online participants from different time zones, pre-recorded (PR) talks were included in the program. PR hightlights (for abstracts see ***Appendix 4***) were made available for participants in advance (linked on the Joint M&S CB Workshop webpage by Clay Oboth, START). The online meeting connection was opened at 7:30 EST and the time before the Joint M&S CB Workshop opening was devoted to viewing of PR talks "on-your-own" so that questions for PR talks could be asked during the Q&A sessions of the workshop.

The meeting was opened by the START team represented by Clay Oboth and Jon Padgham who led the meeting organization. Day 1 was then under the lead of Jana Albrechtova (SCERIN), who introduced the Joint M&S CB Workshop Goals and Agenda for Day 1 in more detail, as well as each following presenter.

Since the Joint M&S CB Workshop was originally planned to be held in 2020 at Aristotle University in Thessaloniki, Greece, the first talks were given by representatives of the originally intended hosts there. The welcome address was given by Nikolaos Papaioannou, Rector of Aristotle University, who discussed the university structure, achievements, and facilities. Following this, short talks were given by Ioannis Gitas and George Zalidis, both from Aristotle University on the topics "The role of Lab of Forest Management and Remote Sensing" and "The role of Aristotle University in the Region", respectively.

The first block of the program for Day 1 began with the keynote plenary lecture of the workshop given by Garik Gutman (NASA Headquarters, Washington, DC) on NASA LCLUC Update. The LCLUC Program strongly supports research activities in the GOFC-GOLD networks, including MedRIN and SCERIN. Following this, a keynote plenary talk was given by Krishna Vadrevu (NASA/MSFC) on behalf of himself and Chris Justice, both representing the GOFC-GOLD leadership. The talk introduced the structure and activities of GOFC-GOLD and the Regional Networks and strongly promoted regional activities in RINs and joint efforts across RINs (for an abstract see ***Appendix 3***). Then representatives of both networks - Diofantos G. Hadjimitsis (MedRIN) and Petya Campbell (SCERIN) - introduced their respective network statuses and goals in their presentations. The short discussion (Q&A for plenary

talks) before the break was led by Lucie Kupkova based on the questions from the chat function. Before the break, a group photo of workshop participants was taken (see below).

The second block of the program for Day 1 began with two invited talks. The first invited talk was on „Healthy Soils“ and was given by Luca Montanarella (Joint Research Center, EU) and the second talk was titled „Space Technology to the Power of Hundreds“ and was given by Agnieszka Lukaszczyk, (Planet). (For both abstracts see ***Appendix 3.***) The discussion on MedRIN and SCERIN joint activities was led by Vincent Ambrosia and Petya Campbell. After this, a discussion on PR talks 1-6 (for abstracts see ***Appendix 4***) was led by Petya Campbell and Lucie Kupková (SCERIN). Questions for each PR talk were asked using the chat function during the sessions of Day 1.

The closing of the Day 1 was given by Joint M&S CB Workshop organizers with a lively discussion – and also included participation from Chris Justice, Krishna Vadrevu, Garik Gutman and Jon Padgham. The objectives for Day 2 were introduced by Jana Albrechtová. 77 participants (including hosts and organizers) attended Day 1 of the MedRIN and SCERIN Joint CB Workshop (see the list of participants is in ***Appendix 6***). Out of that, 42 participants were associated with MedRIN, 18 with SCERIN, 1 with CARIN, 1 with CARIN /SCERIN, and 5 identified themselves as associated with MedRIN/SCERIN networks.

Agenda of the meeting during the DAY 2, June 16, 2021 was:

Time (EST)	Time (EET)	**June 16, 2021** *Agenda Lead & Introductions:* ***Ioannis Gitas*** *(MedRIN)*
7:30	*14:30*	*Registration and equipment tests (optional)*
8:00	15:00	*Viewing of PR talks: on your own play talks 7-13; Q on the Chat, A at 11:20/18:20*
8:30	**15:30**	**Current status of the Landsat program (*Jeff Masek*, GSFC/NASA) invited**
Young LCLUC Investigators: Projects in partnership with GOFC-GOLD RINs *(10 min each)*		
8:50	**15:50**	**SCERIN: Agricultural productivity and yield (Sergii Skakun and Natalia Kussul) invited**
9:00	**16:00**	**MedRIN: New research fire demo (Aaron Sparks, Imen Bouhamed, Stefanos Papaiordanidis, Chariton Kalaitzidis and Ioannis Gitas) invited**
9:10	*16:10*	*Discussion:* Expert and Young Investigator talks Q & A from Chat *(Petya)*
9:25	16:25	Introduction of the first-time participants (new members present 1-2 min flash talk, MedRIN and SCERIN; *Leads Ioannis & Clay*)
9:40	*16:40*	*Break (10 min, PICTURE)*
9:50	16:50	MedRIN RS hot-topics by Country (flash talks by country, 3-5 min. each, *Lead Vince)* *Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Malta, Turkey*
10:30	17:30	SCERIN RS hot-topics by Country (flash talks by country, 3-5 min. each, *Lead Petya)* *Bosnia & Herzegovina, Bulgaria, Czech Republic, Hungary, Poland, Romania, Serbia, Slovakia, Ukraine*
11:10	*18:10*	*Break (10 min)*
11:20	*18:20*	*Discussion:* Country hot topics Q&A from Chat and Audience *(Vince/Petya)* *PR talks Q&A (Lucie/Ioannis)*
12:20	19:20	Objectives for Day 3, Closing of the day – Jana, Garik, Petya, Lucie
12:30	*19:30*	*Adjourn*

The program for ***Day 2*** focused on the current state of knowledge and status of LCLUC methods worldwide as well as in the MedRIN and SCERIN regions. Day 2 was then under the lead of Ioannis Gitas (MedRIN) who introduced Agenda for Day 2 in more detail as well as each following presenter. As with Day 1, a period of time before the workshop began was devoted to viewing of PR talks 7-13

(for abstracts see ***Appendix 4***) "on-your-own" so that questions to PR talks could be asked during the Q&A sessions.

The first block of the program for Day 2 began with the invited lecture given by Jeff Masek (GSFC/NASA) on the „Current status of the Landsat program." Following this, were two invited plenary Expert and Young Investigator talks selected from each region. SCERIN was represented by a talk given by Sergii Skakun and Natalia Kussul focused on Agricultural productivity and yield. MedRIN was represented by a talk given by a collective of authors (Aaron Sparks, Imen Bouhamed, Stefanos Papaiordanidis, Chariton Kalaitzidis and Ioannis Gitas) titled "New research fire demo." (For both abstracts see ***Appendix 3***.) The following discussion on the invited talks weas led by Petya Campbell. Clay Oboth and Ioannis Gitas led a short self-introduction of the first-time participants and new members of both networks.

The second block of Day 2 began with RS hot-topics, in the form of flash talks (3-5 min. each) presented by country, from both networks. Vincent Ambrosia led the MedRIN RS hot-topics, which were presented from the following countries: Cyprus (Diofantos Hadjimitsis et al.), Egypt (Ali Wheida), France (Brice More), Greece (Ioannis Gitas et al.), Israel (Arnon Karnieli and Eyal Ben Dor), Jordan (Stefanos Papaiordanidis et al.), Turkey (Levent Genc). Italy and Malta were not able to attend. Petya Campbell lead the SCERIN RS hot-topics consisting of presentations from the following countries: Bosnia & Herzegovina (Gordana Jakovljevic), Czech Republic (joint presentation by Jana Albrechtová, Lucie kupková and Olga Brovkina et al.), Hungary (Levente Ronczyk), Poland (Stanislaw Lewinski), Romania (Anisoara Irimescu, Mihai Daniel Nita et al.), Serbia (Miro Govedarica), Slovakia (Andrej Halabuk et al.), Ukraine (Sergii Skakun and Natalia Kussul). Bulgaria was unable to attend. Before the break, a group photo of workshop participants was taken (see below).

Following discussion on country hot topics, a Q&A from the meeting participants was led by Vincent Ambrosia and Petya Campbell. The discussion session for PR talks 7-13 (for abstracts see ***Appendix 4***) followed, pulling questions from the chat, which was led by Lucie Kupková and Ioannis Gitas. The final discussion and closing of the Day 2 was given by workshop organizers – Vincent Ambrosia, Ioannis Gitas, Petya Campbell. Objectives for Day 3 were presented by Ioannis Gitas. 80 participants (including hosts and organizers) attended Day 2 of the MedRIN and SCERIN joint CB workshop (see the list of participants is in ***Appendix 6***). Out of that, 38 participants were associated with MedRIN, 19

with SCERIN, 1 with CARIN, 1 with CARIN / SCERIN, and 5 identified themselves associated with MedRIN/SCERIN networks.

Agenda of the meeting during the DAY 3, June 17, 2021 was:

Time (EST)	Time (EET)	**June 17, 2021** *Agenda Lead & Introductions:* ***Jon Padgham*** *(START)*
7:30	*14:30*	*Registration and equipment tests (optional)*
8:00	15:00	*Viewing of PR talks on your own; Q&A on the Chat, Moderators Lucie/Petya and Ioannis/Vince*
8:30	**15:30**	**Fire in the context of climate change (Jesus San Miguel, Joint Research Center, EU) invited**
8.50	15:50	Parallel working sessions of SCERIN and MedRIN (breakout session, summaries/reports)
SCERIN		*Considerations for the collaborative paper on main trends and driving forces of agricultural land use / land cover changes in Central and East Europe (Greg Taff, WRI, Washington, DC)*
		Discussion of future SCERIN activities, working groups, collaborations, meeting location (Ukraine and Bulgaria, Petya)
MedRIN		*Discussion of future activities, working groups, collaborations, meetings and locations (Lead Vince)*
10:00	*17:00*	*Break (10 min)*
10:10	17:10	MedRIN reporting (tasks and follow-up activities), future venues
10:30	17:30	SCERIN reporting (tasks and follow-up activities), future venues
11:00	*18:00*	*Discussion: M&S reporting Q and A (Vince/Petya)*
11:30	18:30	Live Participants Survey* & Report of Outcomes *(Leads:* Kyriacos Themistocleous*)*
12:00	19:00	Closing of the day and workshop (PICTURE, Ioannis/Vince, Jana/Lucie/Petya, Garik, Jon)
12:30	*19:30*	*Adjourn*

*Real time survey of the joint topics MedRIN and SCERIN can address together

Day 3 of the workshop was led by Jon Padgham (START). The first block of Day 3 kicked off with the last invited talk of the workshop, which was given by Jesus San Miguel (Joint Research Center, EU) and was titled "Fire in the context of climate change." The workshop platform was then divided into two parallel working sessions for the SCERIN and MedRIN regional networks. The SCERIN breakout session was led by Petya Campbell and focused on discussions of future SCERIN activities, working groups, and collaborations. Jana Albrechtova and Lucie Kupkova led discussions on the current collaborative paper and projects underway in SCERIN. The SCERIN working session group also provided a forum for discussion of the following RIN focus groups, to consider possible thematic areas for collaboration with MEDRIN:

- FG1: Forest monitoring – forest management, forest health and function, forest disturbances and biomass
- FG2: Land use changes – agricultural abandonment, urban expansion
- FG3: Validation/verification network
- FG4: Water management and LC impacts (river watersheds, catchments, dams,

Invitations for the next SCERIN meeting location were also presented by Ukraine, Bulgaria and Czechia.

The MedRIN breakout session was led by Vincent Ambrosia. During the MedRIN session, Vincent Ambrosia, Ioannis Gitas and Diofantos Hadjimitsis (MedRIN) presented and led discussions with strong interaction with the members (see below key snapshots).

Key points presented:

- MedRIN Breakout Session: Leadership
- MedRIN Objectives
- Problem Statements and Solutions
- Share infrastructure through existing programs like EXCELSIOR
- Collaborate with EXCELSIOR H2020 TEAMING: other activities
- 3rd Annual MedRIN Meeting (2022)
- 2nd Joint MedRIN / SCERIN Workshop (Bulgaria proposed for 2023)
- Joint Virtual/Webinars meetings co-organized with other funded projects e.g. EXCELSIOR (e.g. EMMENA region: has already planned)
- Joint submission of Proposals e.g. ERASMUS
- Improving the website of the network by including short bios & research interests of each member (with START help): improve visibility
- MDPI REMOTE SENSING journal/ Special issue: to be announced
- Thematic Summer Schools
- MedRIN Thematic Priorities: establish today focus groups/ nominate one leader per group

Concluding Remarks for the MedRIN Breakout session:

- Next MedRIN Annual Meeting will take place either in Malta or Israel or Cyprus (under RSCy)
- Establishment of Leaders in each Focus Group.
- MDPI Remote Sensing Special Issue related with the 6 Focus groups will be announced.
- Great need to collaborate with Excelsior: agree to attend the Excelsior workshops and activities (joint activities will be announced)
- Organize Summer Thematic Schools
- The following final focus groups (priorities) have been approved. State of the Art Techniques (Artificial Intelligence) has been added under Priority /Focus Group 6 after strong discussion and exploring the great need to integrate AI: Artificial Intelligence
  Focus Groups have been finalized and agreed as below:
  1. *Urban and built-up areas (wildland urban interface, population dynamics and how that affects landscape)*
  2. *Rural areas / Agriculture, Forestry and wildlands (monitoring dynamic landscape changes)*
  3. *Hazards (fires including agricultural fires, earthquakes, floods, etc.)*
  4. *Soil and water resources management (Irrigation/Hydrology, Soil degradation, Desertification)*
  5. *Climate change*
  6. *Education/Training to be a major component of all proposed priorities (TAT NASA-ESA model) & State of the Art Techniques (Artificial Intelligence)*

The second block of the workshop continued in plenary mode with the MedRIN and SCERIN breakout groups reporting on their parallel sessions (tasks, follow-up activities, and future venues). The reporting and following discussions were led by Vincent Ambrosia and Petya Campbell.

Following the MedRIN and SCERIN reporting out, a live participants survey, followed by a report of outcomes, was led by Kyriacos Themistocleous (MedRIN) who presented a questionnaire on joint topics of interest to MedRIN and SCERIN on the platform Mentimeter. The questions for the real-time survey were discussed by network leaders (for the list of questions see ***Appendix 5***).

Kyriacos Themistocleous also presented survey results, which included:

- As the primary topic areas MedRIN and SCERIN should jointly collaborate on, the main choices were forest monitoring (22 %), agricultural LCC (16 %), and validation/verification of global satellite products at a regional /local scale (14 %).
- The primary forms of collaboration or engagement with colleagues from other institutes (nationally or internationally) are through joint research projects (29 %), joint meetings interaction (27 %) and joint authorship of publications on a specific research topic (22 %).
- Main issues that prevent or make collaboration difficult are selected funding sources (39 %) and current geo-political issues (38 %).
- Decisions on what future topics should be added to the next Joint M&S CB workshop in 2023 was ambiguous: new / future EO efforts to support change discrimination in LCLUC (27 %), shifts in regional climate affecting LC dynamics (21 %), drought monitoring / impacts in the European region (18 %) and water issues and migration / immigration effects on LCLUC in European region both received 17 %.
- The main roadblocks to improving capacity building / uptake of EO data for LCLUC issues were identified: limited funding opportunities focused on capacity building efforts (51 %), lack of "home" institution resources to apply learned EO tools to sustain capacity building (28 %) and interoperability of validation data of satellite products (21 %).
- Existing large, funded projects activities can benefit from MedRIN and SCERIN for promoting collaboration in the EMMENA area in the form of research projects (25 %) and professional training (23 %).
- Regarding the form of the next Joint M&S CB workshop in 2023, the majority of participants preferred combination of in-person and virtual workshop (52 %), though even 45 % think that likely they will attend in-person.
- The final questions characterized the composition of the survey participants – the majority was from academia-faculty (46 %) together with academia-students (23 %) and representatives of government agencies (22 %). In the survey there were participants from MedRIN (55 %), SCERIN (31 %) and both networks (14 %).

Before the closing of the Joint M&S CB workshop, a group photo of workshop participants was taken (see below).

Day 3 closed with a lively final discussion involving network leaders and representatives from START (Jon Padgham) and NASA Headquarters (Garik Gutman). The outcomes of the Joint M&S CB workshop were positively received regarding the usefulness of the joint meeting and future hopes were expressed in formation of future joint efforts. Altogether 61 participants attended the sessions of Day 3. Of those participants 35 participants were associated with MedRIN, 14 with SCERIN, 1 with CARIN, 1 with CARIN/SCERIN, and 3 identified themselves associated with MedRIN/SCERIN networks. Full list of participants of Day 3 is in ***Appendix 6***.

B. Full list of participants including name, and affiliation

Full list of participants of Day 1-3 is in ***Appendix 6***.

C. Partner institutions associated with the organization of the meeting

- University of Maryland Baltimore County and NASA/Goddard Space Flight Center, Greenbelt, MD, USA

- California State University-Monterey Bay (CSUMB) and NASA-Ames Research Center, Moffett Field, California, USA
- Aristotle University, Thessaloniki, GR
- Charles University, Prague, Faculty of Science, CZ
- Cyprus University of Technology, CY

D. Scientific communications that came out of the meeting

Participants would appreciate the focus of network activities on joint research projects, joint meetings and joint authorship of publications on specific research topics. It was a great opptunity to increase visibility of both networks resulting in new applications for memberships (e.g. Cyprus, Tunisia, Egypt, Turkey, Greece, Moracco, Lebanon, and Bulgaria). Discussion of future topics of the next Joint M&S CB workshop in 2023 was not unambiguous and interest was almost the same for all following topics: new / future EO efforts to support change discrimination in LCLUC, shifts in regional climate affecting LC dynamics, drought monitoring / impacts in the European regional water issues and migration / immigration effects on LCLUC in European region.

It was a great opprtunity for both networks to come together and discuss possible ways of collaboration by joining forces in different future activities such as participation in common proposals, participation in training, workshops, etc.

E. Future actions identified by the network

Next joint SCERIN / MedRIN meeting will be held again, hopefully in 2023. The form, focus and organization will be discussed by leaders of both networks in the beginning of 2022 at latest. Most participants preferred a combination of in-person and virtual workshop.

SCERIN activities: 1) A review paper effort initiated in the SCERIN bark beetle seminar 2021 led by Lucie Kupkova and other SCERIN leaders Petya Campbell and Jana Albrechtova “Remote Sensing on bark beetle outbreaks monitoring” is under development.

MedRIN activities: *Future actions*

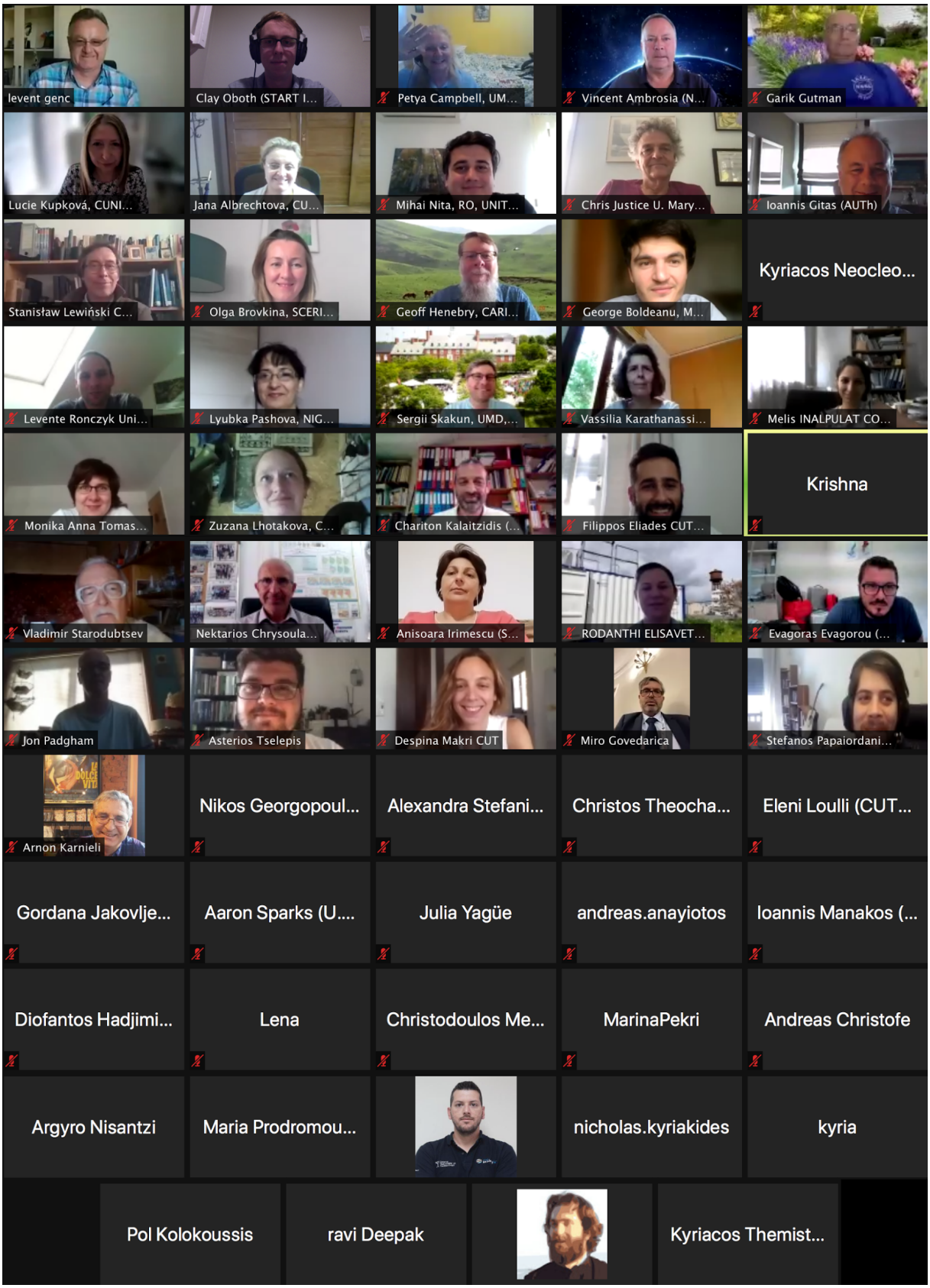
1. Next steps for the network : Nominate a leader in each Focus Group. Six Focus Groups (previously stated as priority areas) have been finalized and approved, Collaboration with EXCELSIOR H2020 Teaming will take place, MDPI Remote Sensing Journal/Special issue will be announced soon.

2. The next Annual Meeting of MedRIN will take place in Malta, Israel or in Cyprus during RSCy conference (March to April 2022)

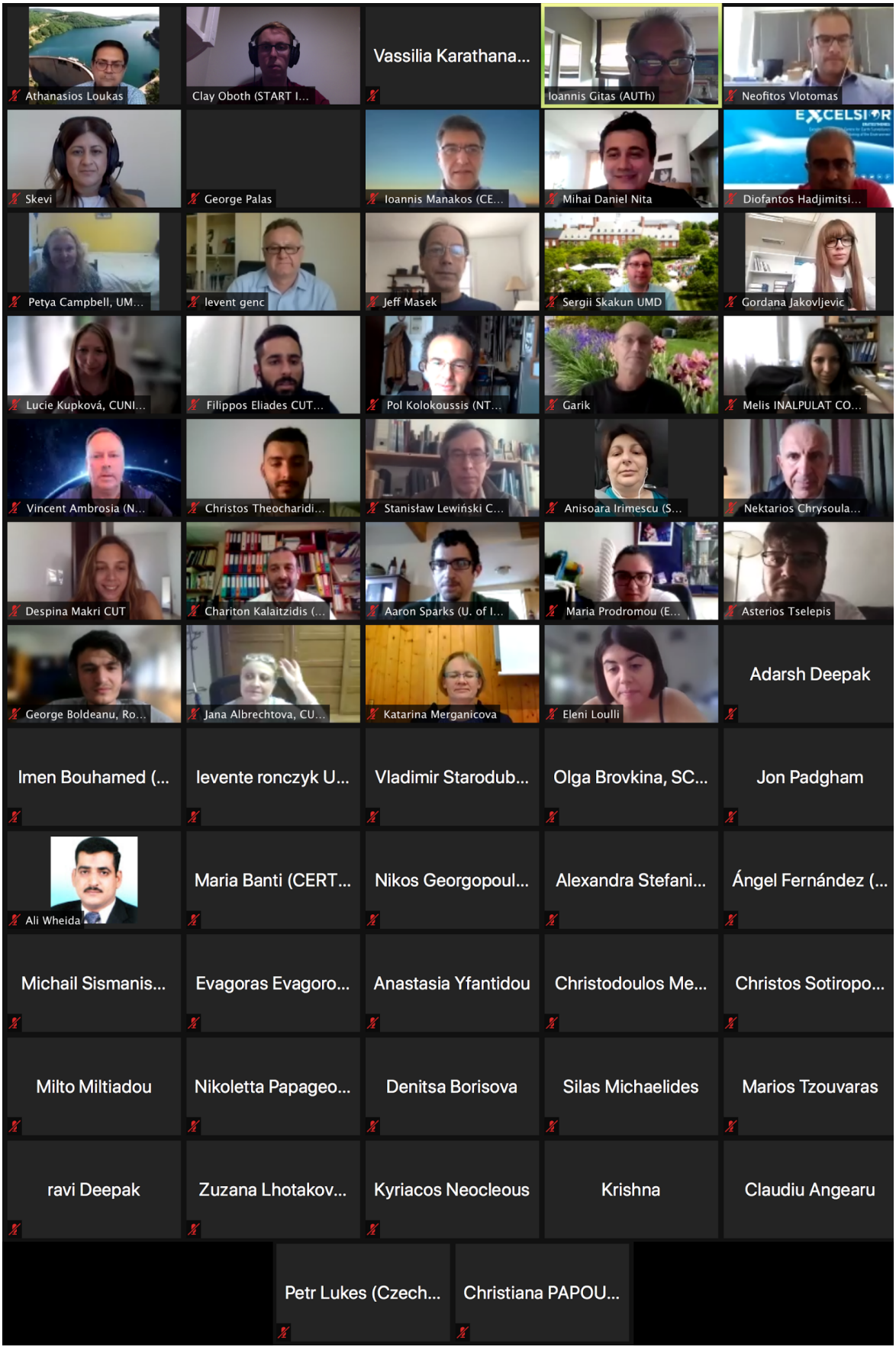
3. The on-line survey results will be used for further actions for the benefit of the MedRIN members.e.g. Forest Monitoring is the primary LCLUCC topic area in which MedRIN & SCERIN should jointly collaborate (22 %), research projects is the most usual way for collaboration (29 %), Funding and geopoliotical issues are the key obstacles for the efficient collaboration (38 % & 39 %), Research projects (25 %), trainings (23 %), infrastructure sharing (17%) will be beneficial to both network members from large funded projects such as Excelsior.

F. Pictures from the Joint M&S CB workshop

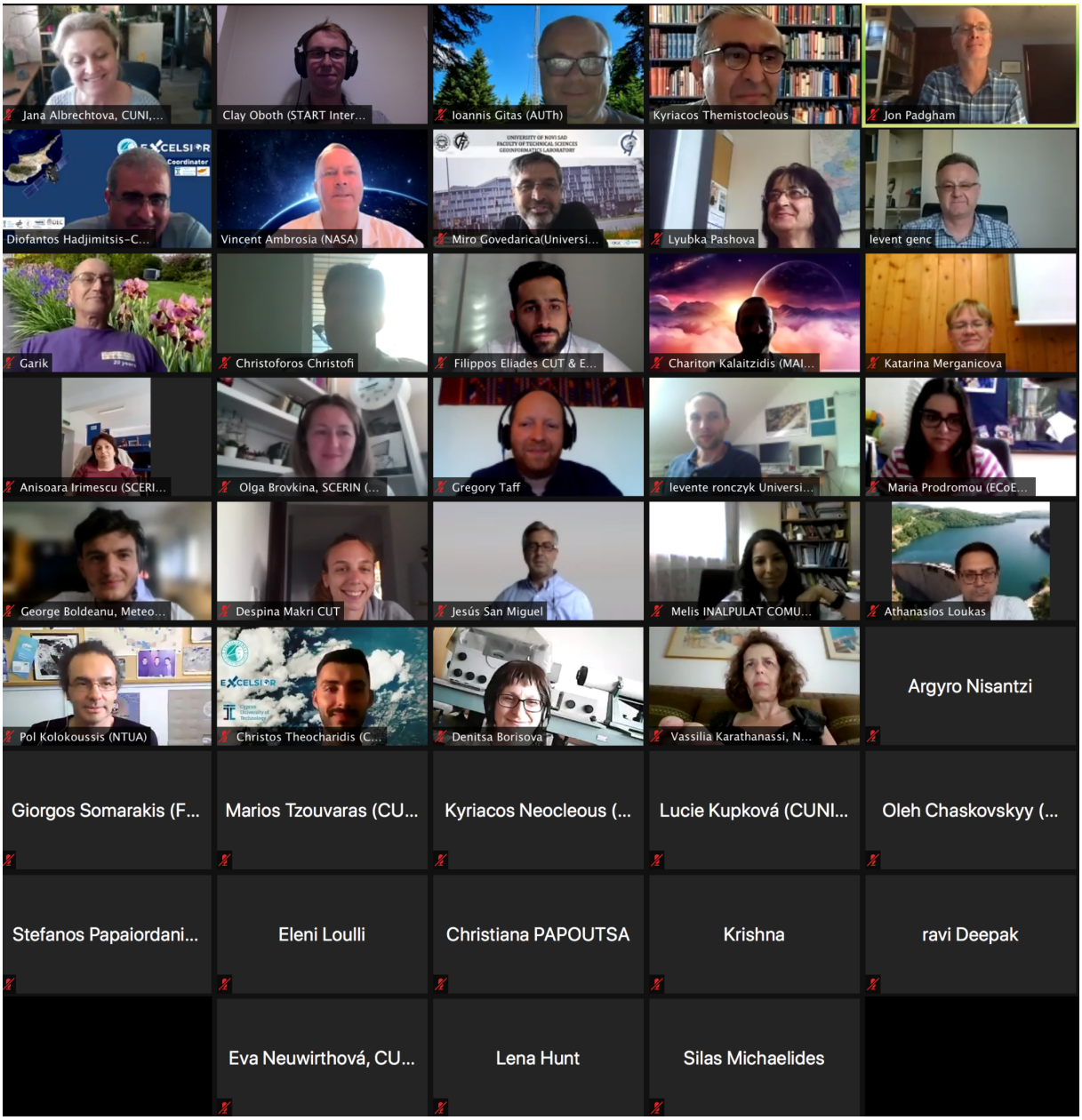
DAY 1, June 15, 2021 Group Photo



DAY 2, June 16, 2021 Group Photo



DAY 3, June 17, 2021 Group Photo



APPENDIX 1:

Final Joint M&S CB workshop Agenda prepared and sent to invited participants from GOFC-GOLD RINs in advance (available on the Joint M&S CB workshop web page: https://gofcgoldvh1.umd.edu/sites/default/files/2021-06/Final%20Agenda.pdf)

Joint MedRIN and SCERIN Virtual Capacity Building Workshop on Earth System Observations - Draft AGENDA

Focus on Ecosystem health, droughts, and wildfires in the context of climate change

Time (EST)	Time (EET)	**June 15, 2021** *Agenda Lead & Introductions:* ***Jana Albrechtova*** *(SCERIN)*
7:30	*14:30*	*Registration and equipment tests, PR talks viewing: on-your-own play talks 1-6; Q on the Chat, A 11:30*
8:00	15:00	Opening: Logistics (*Clay Oboth*, START), Workshop Goals and Agenda (Jana Albrechtova, SCERIN)
8:15	15:15	Welcome address: Nikolaos Papaioannou, Rector, Aristotle University The role of Lab of Forest Management and Remote Sensing (*Ioannis Gitas, Aristotle University*) The role of Aristotle University in the Region (*George Zalidis*, *Aristotle University*)
8:40	15:40	NASA LCLUC Update (*Garik Gutman*, NASA Headquarters, Washington, DC)
9:00	16:00	GOFC-GOLD and the Regional Networks *(Krishna Vadrevu, NASA/MSFC)*
9:20	16:20	MedRIN Status, Goals (*Gitas/Ambrosia/Hadjimitsis*, MedRIN Coordinators)
9:35	16:35	SCERIN Status, Goals (*Albrechtova/Campbell/Kupková*, SCERIN Coordinators)
9:50	*16:50*	*Q & A for plenary talks, from the Chat (Lucie Kupková)*
10:00	*17:00*	*Break (10 min, PICTURE)*
10:10	**17:10**	**Healthy Soils (*Luca Montanarella*, Joint Research Center, EU) invited**
10:30	**17:30**	**Space Technology to the Power of Hundreds (*Agnieszka Lukaszczyk*, Planet) invited**
10:50	17:50	*Q & A for invited talks*
11:00	17:00	Joint issues/activities for MedRIN* & SCERIN *(Vince Ambrosia, MedRIN; Petya Campbell, SCERIN). * Questions for survey (Vince) – survey and outcomes on day 3 (Vince/Kyriacos)*
11:20	*18:20*	*Discussion of M&S joint activities; Q & A from the Chat (Leads: Vince & Petya, ALL)*
11:40	*18:40*	***Discussion of PR talks**; Q & A on the Chat (Leads: Lucie/Petya; ALL)*
12:15	19:15	Objectives for Day 2, Closing of the day *(Jana, Garik, Diofantos, Ioannis, John, Petya, Vince)*
12:30	*19:30*	*Adjourn*

Time (EST)	Time (EET)	**June 16, 2021** *Agenda Lead & Introductions:* ***Ioannis Gitas*** *(MedRIN)*
7:30	*14:30*	*Registration and equipment tests (optional)*
8:00	15:00	*Viewing of PR talks: on your own play talks 7-13; Q on the Chat, A at 11:20/18:20*
8:30	**15:30**	**Current status of the Landsat program (*Jeff Masek*, GSFC/NASA) invited**
		Young LCLUC Investigators: Projects in partnership with GOFC-GOLD RINs *(10 min each)*
8:50	**15:50**	**SCERIN: Agricultural productivity and yield (Sergii Skakun and Natalia Kussul) invited**
9:00	**16:00**	**MedRIN: New research fire demo (Aaron Sparks, Imen Bouhamed, Stefanos Papaiordanidis, Chariton Kalaitzidis and Ioannis Gitas) invited**
9:10	*16:10*	*Discussion:* Expert and Young Investigator talks Q & A from Chat *(Petya)*
9:25	16:25	Introduction of the first-time participants (new members present 1-2 min flash talk, MedRIN and SCERIN; *Leads Ioannis & Clay*)
9:40	*16:40*	*Break (10 min, PICTURE)*
9:50	16:50	MedRIN RS hot-topics by Country (flash talks by country, 3-5 min. each, *Lead Vince)* *Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Malta, Turkey*
10:30	17:30	SCERIN RS hot-topics by Country (flash talks by country, 3-5 min. each, *Lead Petya)* *Bosnia & Herzegovina, Bulgaria, Czech Republic, Hungary, Poland, Romania, Serbia, Slovakia, Ukraine*
11:10	*18:10*	*Break (10 min)*

11:20	*18:20*	*Discussion:* Country hot topics Q&A from Chat and Audience *(Vince/Petya)* *PR talks Q&A (Lucie/Ioannis)*
12:20	19:20	Objectives for Day 3, Closing of the day – Jana, Garik, Petya, Lucie
12:30	*19:30*	*Adjourn*

Time (EST)	(EET)	**June 17, 2021** *Agenda Lead & Introductions:* ***Jon Padgham*** *(START)*
7:30	*14:30*	*Registration and equipment tests (optional)*
8:00	15:00	*Viewing of PR talks on your own; Q&A on the Chat, Moderators Lucie/Petya and Ioannis/Vince*
8:30	**15:30**	**Fire in the context of climate change (Jesus San Miguel, Joint Research Center, EU) invited**
8.50	15:50	Parallel working sessions of SCERIN and MedRIN (breakout session, summaries/reports)
SCERIN		*Considerations for the collaborative paper on main trends and driving forces of agricultural land use / land cover changes in Central and East Europe (Greg Taff, WRI, Washington, DC)*
		Discussion of future SCERIN activities, working groups, collaborations, meeting location (Ukraine and Bulgaria, Petya)
MedRIN		*Discussion of future activities, working groups, collaborations, meetings and locations (Lead Vince)*
10:00	*17:00*	*Break (10 min)*
10:10	17:10	MedRIN reporting (tasks and follow-up activities), future venues
10:30	17:30	SCERIN reporting (tasks and follow-up activities), future venues
11:00	*18:00*	*Discussion: M&S reporting Q and A (Vince/Petya)*
11:30	18:30	Live Participants Survey* & Report of Outcomes *(Leads:* Kyriacos Themistocleous*)*
12:00	19:00	Closing of the day and workshop (PICTURE, Ioannis/Vince, Jana/Lucie/Petya, Garik, Jon)
12:30	*19:30*	*Adjourn*

*Real time survey of the joint topics MedRIN and SCERIN can address together

Dates & timing	**6/15/21, 6/16/21, 6/17/21**	
	start	**end**
EST	8:00	12:30
CET	14:00	18:30
EET	15:00	19:30

Talk Type	**Color code**
Pre-recorded	
Live	

Web Links
To join: https://us02web.zoom.us/j/84447564710?pwd=QWxvS1plemlkc3JQUnZESkljdzNtUT09
Bios: https://docs.google.com/document/d/1AHSZ95ANeTGkieOa6kLkm7scei7bO5SbrlhZAmPqf-A/edit
Pre-recorded research highlights (PR Talks): Pre-Recorded Research Highlights | GOFC GOLD (umd.edu)

Agenda Talks: The invited talks on the AGENDA in grey are pre-recorded talks. Link to the Pre-recorded agenda talks

The items in green will be live. During the workshop, 'live' Agenda Leads will introduce the speakers (1 min/person), and our START hosts will play the talks.

Pre-recorded Research (PR) highlights, not included as talks in the Agenda: The participants are invited to provide Pre-recorded Research (PR) talks (title, authors, and abstract ≤200 words). Format: 1-5 slides, 5 min/talk (template will be e-mailed upon registration). The PR talks will be due on June 7 to Clay and will be posted on-line 1 week before the meeting and will be available after the workshop at the GOFC-GOLD web site. All PR talks will be viewed on-your-own. Talks 1-4 will be played on Day 1 and 5-8 on Day 2, and questions will be directed to the authors during the discussions.

MedRIN and SCERIN RS Country hot topics (Day 2): survey of the current remote sensing 'hot topics' by country. The presentations include coordinated summaries by country of the top 3-5 RS priorities with inputs by the participants. The format is one flash talk by country (3-5 min. each).

Logistics and support: Contact Clay Oboth via email: coboth@start.org

Appendix 2 - Introduction of Joint M&S CB workshop Presenters

Dr. Garik Gutman, the Program Manager for the NASA Land-Cover/Land-Use Change (LCLUC) Program, received his Ph.D. in Climate Modeling. In later 1980's he was a National Research Council of the National Academy of Sciences Fellow at National Oceanic and Atmospheric Administration (NOAA). Since 1990, Dr. Gutman worked as NOAA civil servant for about 10 years applying remote sensing in studies of Earth's land surface vegetation, for which he received the U.S. Department of Commerce Bronze Medal Award. He is author of over 80 publications in peer-reviewed scientific journals and of several chapters in various climate- and land-cover related scientific volumes.

Dr. Gutman has been playing a key role in developing and co-leading international regional initiatives, for which he received the NASA Cooperative External Achievement Award. These initiatives included the Large-Scale Biosphere Atmosphere Experiment in Amazonia (LBA), the Northern Eurasia Earth Science Partnership Initiative (NEESPI), and the South/Southeast Asia Research Initiative (SARI). His international activities included organization of regional workshops and trainings, attended by hundreds of local scientists and students, in almost every country of the SARI region. Dr. Gutman has been a lead or co-editor on several books on LCLUC-climate interactions in Northern Eurasia published by Springer (the Eurasian Arctic, Siberia, Eastern Europe, and Central Asia) as well as lead or co-editor on special issues in peer-reviewed journals. He serves as Editorial Board member in two open access MDPI journals: Remote Sensing and Land.

Over the last two decades Dr. Gutman has been leading the LCLUC program at NASA Headquarters as well as Landsat-related activities. He served as EO-1 Program Scientist to the end of the mission and is now Program Scientist for Landsat and Terra missions. Dr. Gutman has fostered multi-sensor land imaging methods fusing data from different sensors throughout the electromagnetic range and with different resolutions. To provide the land community with long-term time series from Landsat before its data became freely available, Dr. Gutman co-led the development of the NASA-USGS Global Land Survey (GLS)-2005 and -2010 30-m mosaic datasets and, more recently, in collaboration with GSFC, the Harmonized Landsat-Sentinel (HLS) reflectance dataset. Dr. Gutman's current research interests include the use of remote sensing at moderate to very high spatial resolution (1-5 m) for detecting changes in land cover and land use, and analyzing the impacts of these changes on climate, environment and society.

Dr. Krishna Vadrevu is a Remote Sensing Scientist at NASA Marshall Space Flight Center, Huntsville, Alabama, and an Adjunct Associate Professor at the University of Maryland College Park. He also serves as the Deputy Program Manager for the NASA Land Cover/Land Use Change (LCLUC) Program (www.lcluc.umd.edu) and program lead for South/Southeast Asia Research Initiative (SARI), a regional program (www.sari.umd.edu). Dr. Vadrevu also serves as a regional network coordinator for the Global Observations of Forests and Land Use Dynamics (GOFC-GOLD), an international forum focusing on exchanging information on Earth observations, coordinating satellite observations, and providing a framework for and advocacy to establish long-term monitoring systems (www.gofcgold.org).

Dr. Vadrevu received his Ph.D. in 2000 while working at the National Remote Sensing Center, Indian Space Research Organization (ISRO). He served as PI and Co-I on diverse projects funded by multiple agencies. He worked as a postdoctoral researcher and research scientist at the Ohio State University for nine years and as an Associate Research Professor at the University of Maryland College Park, the USA, for seven years. His research focuses on remote sensing of land use/cover changes, mapping and monitoring fires, greenhouse gas emissions, land-atmospheric interactions, agroecosystems, and ecosystem sustainability. He promotes the use of various Earth Observations and interdisciplinary approaches to address environmental issues and societal challenges.

Prof. Chris Justice received his Ph.D. from the University of Reading, United Kingdom, in 1977. In 2001 he became a Professor and Research Director of Geography at the University of Maryland, and in 2010, became the Department Chair (to the renamed Department of Geographical Sciences). Dr. Justice is a Program Scientist for NASA's Land Cover Land Use Change (LCLUC) Program. He is the Land Discipline Leader for the NASA Moderate Imaging Spectroradiometer (MODIS) and the Soumi-NPP VIIRS Science Team and is responsible for the MODIS Fire Product. He is the Chair of the international GOFC/GOLD Program. Dr. Justice is co-chair of the GEOGLAM Initiative and Chief Scientist for NASA HARVEST. Dr. Justice's current research is on land cover and land use change, land observations and data products, global agricultural monitoring, and their associated information technology and decision support systems.

South, Central and Eastern European Regional Information Network (SCERIN) Coordinators

Jana Albrechtová, is a Professor at Charles University (CU), Faculty of Science in Prague, Czech Republic, Department of Experimental Plant Biology. Her research focuses on plant ecophysiological studies employing plant anatomy, physiology, spectroscopy with emphasis given to multidisciplinary approaches. Long-term, she has been studying the monitoring of the physiological status of vegetation using remote sensing methods. She collaborates with GOFC-GOLD and START, being a European leader of SCERIN (South, Central and Eastern Regional Network) https://www.scerin.eu/

Lucie Kupková, is an Associate professor at Charles University Prague, Faculty of Science, a head of the Department of Applied Geoinformatics and Cartography. She is focused mainly on landscape change evaluation, vegetation classification/change detection and health status evaluation using different types of optical remote sensing data (including data from UAV), image and laboratory spectroscopy. She is coordinator of SCERIN (The South, Central and East European Regional Information Network) of the Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD), a member of Steering Committee of International Geographical Union, Commission on Land Use and Land Cover Change, and a member of Eurosite Remote Sensing Support Group for conservation practitioners.

Petya Campbell, is an Associate Research Professor at University of Maryland Baltimore County and at NASA/Goddard Space Flight Center, Greenbelt, MD, USA. She is the GOFC-GOLD South Central and Eastern European Network (SCERIN) US Coordinator. Dr. Campbell's research combines forest ecology and silviculture with remote sensing, using the tools of reflectance and fluorescence spectroscopy. Her experience includes collaborative interdisciplinary research and networking. She is interested in monitoring vegetation function and detection of vegetation stress, using consistent measurements from field, UAS, airborne and satellite spectrometers.

Mediterranean Regional Information Network (MedRIN) Coordinators

Vince Ambrosia, is Adjunct Faculty / Sr. Research Scientist at California State University-Monterey Bay (CSUMB) and at NASA-Ames Research Center, Moffett Field, California, USA. He is the GOFC-GOLD Mediterranean Regional Information Network (MedRIN) US Coordinator. Vince's Earth Observations efforts include serving as the Associate Program Manager for Wildland Fire within the NASA Applied Science Program, Science Mission Directorate, NASA HQ. His research interests include improved observation capabilities to inform wildfire decision / management objectives, working with state, national, and international communities on wildfire EO integration into operational use. These efforts include orbital and sub-orbital (manned and UAS) platform sensor systems and decision support / geospatial analysis tools.

Prof. Diofantos G. Hadjimitsis is a Full Professor at the Department of Civil Engineering and Geomatics, Faculty of Engineering and Technology of the Cyprus University of Technology and the Managing Director of the Eratosthenes Centre of Excellence-Cyprus University of Technology. He was the former Vice-Rector of Academic Affairs of the Cyprus University of Technology. He is the Vice President of the 'The Cyprus Agency of Quality Assurance and Accreditation in Higher Education' board. He is also the Head and founder of the Remote Sensing & Geo-Environment Lab. Diofantos received his PhD and MPhil degrees in Remote Sensing from the Department of Civil Engineering, University of Surrey U.K. Diofantos is the coordinator of the 'Excelsior' Horizon Teaming2020 project 'ERATOSTHENES: EXcellence Research Centre for Earth SurveiLlance and Space-Based MonItoring Of the EnviRonment' (www.excelsior2020.eu & www.eratosthenes.org.cy). He has more than 400 publications in journals, conference proceedings, and chapters in books and monographs in the field of remote sensing and GIS. His research has focused on remote sensing and GIS applications in environmental monitoring. He participated as a coordinator or partner in more than 100 funded projects from H2020, FP7, LIFE+, ERASMUS, Structural Funds, ESA, Cyprus Research Promotion Foundation etc. He is a member of the editorial boards of several journals such as 'MDPI Remote Sensing', 'MDPI Heritage' Journals, 'Open Geosciences' Journal. Diofantos is the first term co-leader of the NASA LCLUC Mediterranean Regional Information Network (MedRIN).

Prof. Ioannis Gitas is Director of the Laboratory of Forest Management and Remote Sensing and the Chairman of the Aristotle University Forest Administration and Management Fund. Ioannis, an elected fellow of the Cambridge Philosophical Society, received his PhD and MPhil degrees in GIS and Remote Sensing from the Department of Geography, Cambridge University U.K. His research has focused on remote sensing and GIS applications in environmental monitoring. He is the author or co-author of more than 220 papers in peer-reviewed journals and international conferences. Prof. Gitas

is an Associate Editor of MDPI Remote Sensing, MDPI Earth and PeerJ journals and has edited special issues for a number of high impact factor journals. Ioannis is currently the Chair of the EARSeL SIG on Forest Fires, the FAO Forest Resources Assessment – Remote Sensing Survey contact point for Greece, a member of the GOFC-GOLD Fire Implementation Team, a member of GEO's GWIS, and the first term co-leader of the NASA LCLUC Mediterranean Regional Information Network (MedRIN).

Invited Agenda Speakers

Prof. Nikolaos G. Papaioannou studied at the Veterinary School of the Aristotle University of Thessaloniki. Then he started the PhD thesis, which he supported in 1991.

In 1995 he was elected lecturer at the laboratory of Pathology of the Department of Veterinary Medicine. In 2012 he was elected professor of first grade. From 2013 to today, he is the Director of the Laboratory of pathology, while from 2017 until 31st August 2019, Chairman of the Department of Veterinary Medicine and Deputy Dean of the School of Health Sciences. From 1 st of September 2019 he is the Rector of Aristotle University of Thessaloniki.

He has been trained in the laboratories of pathology of the veterinary schools of Zurich, Utrecht and Wisconsin of the United States of America. His educational work is related to the subject of pathology, while his scientific-research work focuses on histopathological and immunohistopathological study of disease lesions with emphasis on neuropathology, particularly dealing with the study of the pathogenicity of cognitive dysfunction and tumor pathogenesis.

Prof. Papaioannou is a project coordinator in several Greek and international competitive research programs, as well as he has published numerous scientific publications in distinguished international scientific journals.

Prof. George Zalidis is a graduate of the Department of Agriculture at the Aristotle University of Thessaloniki, with a doctorate degree from the Department of Soil Science and a post-doctoral degree from the Department of Civil and Environmental Engineering at Michigan State University. He is the Director of the Laboratory of ''Remote Sensing, Spectroscopy and Geographic Information Systems '', and a Professor of Pollution and Soil Degradation in the Department of Agriculture at Aristotle University of Thessaloniki. He is also the Director of the

Interbalkan Environment Center (i-BEC) since 2007. His research interests focus on issues such as the use of Earth Observation (EO) Data to produce corresponding EO services in the GEO Social Benefits Areas and Sustainable Development Goals, implemented with the standardized GEO compatible methodologies globally, regionally and locally. His EO research activity includes the use of spectral data in monitoring Agricultural and Natural ecosystems, using NEXUS approach for their management and restoration. In addition, his research interest covers the sector of circular economy, through the development of carbon footprint protocols in primary production, composting, micro and macro algal cultivation. He is an expert in quality assurance protocols in Academia, Research, know-how transfer Organizations in all administrative positions served, nationally and internationally, including higher education Quality Assurance Accreditation, a national representative, and member of international committees and councils, and also affiliated Professor in U.S. Universities.

Luca Montanarella Studied agricultural sciences at the University of Perugia, Italy. Post-doctoral studies at the University of Leiden, The Netherlands. Working since 1992 as scientific project manager in the European Commission. Leading the Soil Data and Information Systems activities of the Joint Research Centre in support to the EU Thematic Strategy for Soil Protection and numerous other soil related policies, like the Common Agricultural Policy (CAP), the UNCCD, UNFCCC, CBD, etc… Responsible of the European Soil Data Centre (ESDAC), the European Soil Information System (EUSIS) and the European Soil Bureau Network (ESBN).

In 2011 in charge of the establishment of the Global Soil Partnership (GSP) at FAO. 2012-2018 chairing the Intergovernmental Technical Panel on Soils (ITPS), 2016-2018 co-chairing the Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES) Land Degradation and Restoration Assessment. Currently project portfolio leader for the JRC work programme 2021-27 on Soil Health.

Dr. Agnieszka Lukaszczyk is a Senior Director for European Affairs at Planet. A Polish/American national, has worked at the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs, Space Data for Societal Challenges and Growth Unit. She also worked at the Directorate General for Enterprise and Industry, Space Policy and Research Unit. Before she joined the Commission, Agnieszka was the Brussels Office Director for the Secure World Foundation. In addition, she is the former Chairperson and the former Executive Director of the Space Generation Advisory Council in Support of the United Nations Programme on Space Applications. Agnieszka also worked at the European Space Policy Institute as a research fellow. Agnieszka serves as the Vice President - Europe for the World Space Week And Sits on the Board Of Directors for the Women in Aerospace-Europe. She obtained a PhD in Space Security at the Polish Univeristy of War Studies. She also holds a Master's degree from the Warsaw School of Economics in Management of Space in New Economies and a Master's degree from the American University School of International Service in International Politics plus a Bachelor degree in Political Science from the University of Tennessee.

Dr. Jeffrey G Masek is a Research Scientist in the Biospheric Sciences Laboratory at NASA GSFC. His research interests include satellite-based monitoring forest dynamics, climate-change impacts on terrestrial ecosystems, and remote sensing techniques. In 2015 he was appointed Project Scientist for the Landsat-9 mission, and from 2001-2010 he served as the Deputy Project Scientist for Landsat-8. He also served as Chief of the Biospheric Sciences Lab from 2014-2019. Dr. Masek received a B.A. in Geology from Haverford College (1989) and a Ph.D. in Geological Sciences from Cornell University (1994), and has held previous research positions with University of Maryland, Hughes Information Systems, and Cornell University.

Sergii Skakun received the M.S. degree (Hons.) in applied mathematics from the Physics and Technology Institute, NTUU "Kyiv Polytechnic Institute," Kyiv, Ukraine, in 2004, and the Ph.D. degree in computer science from the National Academy of Sciences of Ukraine, Kyiv, in 2005. He is an Assistant Professor at the Department of Geographical Sciences and College of Information Studies (iSchool), University of Maryland, College Park, MD, USA, and a Research Scientist at Terrestrial Information Systems Laboratory, NASA Goddard Space Flight Center (GSFC), Greenbelt, MD. His research interests are in advancing methods, models and emerging technologies in the area of data science for heterogeneous remote sensing data fusion, processing and analysis, and their applications to the areas of societal benefit. Dr. Skakun is an Associate Editor of the Remote Sensing of Environment.

Aaron Sparks is a postdoctoral fellow at the University of Idaho. Aaron has a BSc, MSc, and PhD in Natural Resources, with an emphasis on fire science and remote sensing. He has a diverse wildland fire background, serving as a wildland firefighter for the U.S. Forest Service and fire researcher at the Missoula Fire Sciences Lab and the University of Idaho. Aaron's research typically focuses on using geospatial analysis and remote sensing to understand how fire and other disturbances affect natural ecosystems.

Imen Bouhamed is a MSc student in Geo-information in Environmental Management at the Mediterranean Agronomic Institute of Chania, Greece. She has a Geo-resources and Environmental engineering degree from Sfax National Engineering School, Tunisia, and has experience in Environmental and Social Impact Assessment engineering for municipalities projects. Research interests include: GIS applications in natural resource management, satellite remote sensing, change detection, and land cover / land use mapping.

Jesus San-Miguel-Ayanz is a senior researcher at the Joint Research Centre of the European Commission in Ispra, Italy. He received his PhD (1993) and MSc (1989) Wildland Information Science from the Forestry Department at the University of California-Berkeley, Berkeley, California, U.S.A. and his Forest Engineering Degree (1987) from Polytechnic University, Madrid, Spain. His research focuses on the use of remote sensing and geographic information systems in forestry and the development of early warning and monitoring systems for wildfires. He leads the operation and further development of the European Forest Fire Information System (EFFIS) in pan-European region and the development of the Global Wildfire Information System (GWIS), under the umbrella of the Group on Earth Observations (GEO) and the EU Copernicus Programs. He has a long record of scientific research and policy support publications, available at: https://www.researchgate.net/profile/J_San-Miguel-Ayanz

Dr. Kyriacos Themistocleous is a Senior Researcher at the Department of Civil Engineering and Geomatics of the Cyprus University of Technology (CUT). He currently is the Technical Manager of the H2020 Teaming EXCELSIOR for establishing a Centre of Excellence in Earth Surveillance and Space-Based Monitoring of the Environment. He has been appointed the director of External Affairs and Business Development of the Eratosthenes Center of Excellence. His research interests include remote sensing in aerial and satellite imaging, GIS, spectroscopy, sustainable development, geophysics, BIM, life cycle cost, cultural heritage, UAVs, urban areas and environmental sciences. Currently, he has over 280 publications in peer-reviewed journals, book chapters and conference proceedings with nearly 2,000 citations. He has participated as chairman in several international conferences as well as reviewer and guest editor for several scientific journals. He is the Organizer and Chair of the International Conference of Remote Sensing and Geo-Information, (RSCy) from 2013 to 2020.

Dr. Themistocleous is President of the Cyprus Remote Sensing Society, member of the General Council of Cyprus Scientific and Technical Chamber (ETEK) Executive Council Member of ICOMOS Cyprus, and the International Society for Optics and Photonics (SPIE). He is the Cyprus representative for the Copernicus User Forum, Copernicus Relay Network and Copernicus Academy in Cyprus as well as member of the Leadership committee of the EU Framework Partnership Agreement on Copernicus User Uptake. He is also a member of the Parallel House of Representatives on Environment, Ecology-Sustainability and Health, member of the Cyprus National Committee for Marine Spatial Planning and member of the National Committee of the Environmental Impact Assessment of the Department of Environment.

APPENDIX 3 – Abstracts of keynote and invited talks of the Joint M&S CB workshop

Day 1, June 15, Block 1, 9:00 (EST): Dr. Krishna Vadrevu and Prof. Chris Justice

Presentation Title: *Global Observations of Forest Cover and Land Use Dynamics (GOFC-GOLD) Program – An Overview*

Authors:
Dr. Krishna Vadrevu, NASA Marshall Space Flight Center, Huntsville, Alabama and University of Maryland College Park, USA
Prof. Chris Justice, University of Maryland College Park, USA

Abstract: Global Observations of Forest Cover and Land-use Dynamics (GOFC–GOLD) is a coordinated international program working to provide ongoing space-based and in situ observations of the land surface to support the sustainable management of terrestrial resources at different scales. The presentation will provide an overview of the GOFC-GOLD program, its structure, function, and activities. The GOFC–GOLD program acts as an international forum to exchange information, coordinate satellite observations, and provide a framework for and advocacy to establish long-term monitoring systems. It was established as a part of a Committee on Earth Observation Satellites (CEOS) pilot project in 1997, focusing on global observations of forest cover. Since then, the program has expanded to include two Implementation Teams: Land Cover Characteristics and Change and Fire Mapping and Monitoring. In addition, four different working groups—Reducing Emissions from Deforestation and Forest Degradation (REDD), Biomass, Agriculture, Forests and Other Land Use Emissions (AFOLU), and Agriculture are also the focus. GOFC– GOLD activities are guided by an executive committee, primarily with support from NASA and implemented by START, a non-governmental organization (NGO). In addition, GOFC-GOLD has twelve different regional networks involved in research, scientific information exchange, and outreach activities. The presentation will highlight additional details about the program.

Day 1, June 15, Block 2, 10:10 (EST): Luca Montanarella

Presentation Title: *The EU Soil Observatory and its related activities*

Authors: Luca Montanarella, European Commission

Abstract: Healthy soils are at the heart of the Green Deal for Europe. In addition to providing us with food, fibres and fuel, soils play a key role in regulating the Earth's climate, providing us with clean water, protecting us from floods and preserving our cultural heritage. A unique habitat in its own right, life within soils underpin all terrestrial ecosystems while providing us with potential new medicines.
However, unsustainable land use together with growing population pressure, changes in consumption patterns and increasing extreme weather events are driving soil degradation. Once lost, soils are non-renewable in terms of human lifetimes. The recent proposal for a Soil Health and Food Mission 'Caring for soil is caring for life' has set the ambitious challenge to ensure that by 2030, 75% of the soils of the EU are healthy for food, people, nature and climate. It is no surprise that soil is then the glue that brings together the different strategies of the Green Deal. Sustainable soil management and the restoration of degraded land is

critical if biodiversity protection targets are to be achieved. Efficient nutrient management, including carbon sequestration to offset climate change, are key measures in the Common Agricultural Policy while reducing pesticide residue levels are aspirations under both the Farm2Fork and Zero Pollution Strategies. Finally, reduced soil sealing and organic waste cycles are both targets of the Circular Economy Action Plan.
It is in this context that the JRC is establishing the EU Soil Observatory, a dynamic and inklusive platform that aims to provide Commission Services, and the broader soil user community, with the diverse knowledge needs and data flows needed to safeguard soils. These include high-resolution, harmonized and quality assured soil information (showing status and trends) that is supported by the outcomes of targeted research. Reflecting the challenge of the Mission and goals of the Soil Thematic Strategy, the Observatory will also support greater citizen engagement and soil literacy to raise awareness of the societal value of soil.

Day 1, June 15, Block 2, 10:30 (EST): Agnieszka Lukaszczyk

Presentation Title: *Space Technology to the Power of Hundreds*

Authors:Dr. Agnieszka Lukaszczyk, Planet

Abstract: *Over the last decade, we've entered the era of the "Space Renaissance," a rebirth of space activities that are accelerating innovation. Agile aerospace—a philosophy of spacecraft development that encourages rapid iteration—was largely just a thought-kernel in the minds of aerospace experts 10 years ago, and now dramatically changing the capabilities from space, including increasing the number of EO satellites by 10x and data rates commensurately, enabling the powering of new smarter and more efficient systems. Founded by NASA scientists, Planet has built and operates over 180 satellites (the largest EO satellite constellation in history), which images the entire Earth landmass every day. There are a wide range of humanitarian applications such as tracking deforestation, illegal fishing, water security; government applications, such as border security, disaster response and urban planning; as well as commercial applications such as improving precision agriculture, consumer mapping, commodities tracking and news.*

Day 2, June 16, Block 1, 8:30 (EST): Jeff Masek

Presentation Title: Current status of the Landsat program

Authors: Jeff Masek, NASA-GSFC

Abstract: The NASA/USGS Landsat Program has collected imagery of Earth's land and coastal areas since 1972. After nearly 50 years Landsat remains a cornerstone for land cover science. This talk will review the current state of the Landsat Program, including the upcoming launch of Landsat 9, introduction of new standard products by USGS, and planning for the follow-on to Landsat 9 (Landsat Next).

Day 2, June 16, Block 1, 8:50 (EST): SCERIN Sergii Skakun and Natalia Kussul

Presentation Title: *High-Impact Hot Spots of Land Cover Land Use Change: Ukraine and Neighboring Countries*

Authors: Sergii Skakun, Nataliia Kussul

Abstract: Since the breakup of the Soviet Union in 1991, Ukraine has been experiencing major changes in land cover and land use (LCLUC). The major drivers for these changes have been continuous economical and policy changes as well as climate variability. In the past 5-7 years, these changes particularly magnified due to the military conflict in the Eastern Ukraine and annexation of Crimea, preparation of the policy to open the land market, conversion to double cropping due to temperature increase and a sharp increase in the production of industrial crops, and continuous practice of burning agricultural fields. All these have led to the LCLUC “hotspots” throughout the country spanning several sectors (agriculture, urban and forestry) and having considerable socio-economic impacts.Therefore, Ukraine represents a perfect testbed with multiple LCLUC “hotspots” of national and regional importance that have a significant socio-economic impact and are policy relevant.This talk will briefly describe goals and activities of the NASA-funded project "High-Impact Hot Spots of Land Cover Land Use Change: Ukraine and Neighboring Countries" and present some preliminary results related to agricultural monitoring (crop mapping, area estimation, field burning) and urban monitoring (change detection, subsidence monitoring).

Day 2, June 16, Block 1, 9:00 (EST): MedRIN
Aaron Sparks

Presentation Title: *Understanding the socioeconomic drivers of agricultural land abandonment and associated fire risk in Greece*

Authors: **Aaron Sparks**, University of Idaho, Moscow, Idaho, USA
Imen Bouhamed, Mediterranean Agronomic Institute of Chania, Crete, Greece
Stefanos Papaiordanidis, Chariton Kalaitzidis, and Ioannis Gitas

Abstract: In recent decades, fire-prone areas in the Mediterranean region have experienced significant agricultural land abandonment, which can increase fire risk due to fuel accumulation and increased fuel continuity. In the case of Greece, which is increasingly affected by large fires, there is no quantitative assessment of the increased fire risk due to abandoned lands, and little understanding of the drivers of land abandonment. The overarching objective of the research is to address these knowledge gaps and inform policy, land planning, and fire management efforts by integrating state-of-the-art remote sensing mapping methodology with socioeconomic empirical analyses for three regions in southern Greece from 1990 to 2019. Specifically, this project will: 1) map abandoned agricultural land across the study area using Landsat time series data, 2) quantify changes in fire risk as a function of time-since-abandonment, using field-derived vegetation cover and structure measurements as input for wildfire modeling, 3) develop spatially explicit multivariate statistical models using socioeconomic, sociocultural, and geophysical variables to identify drivers of agricultural land abandonment, and 4) identify policies and incentives most likely to encourage land management practices that reduce fire risk using a discrete choice experimental survey. This research has high societal relevance given the project results will inform policy makers and land managers on agriculture and land management policy solutions that reduce fire risk.

Day 3, June 17, Block 1, 8:30 (EST):
Jesus San Miguel

Presentation Title: A global approach to wildfire monitoring

Authors: **Jesus San Miguel-Ayanz**, Joint Research Centre of the European Commission

Abstract: Although wildfires are common to many world ecosystems, the intensity and frequency of events in the last years shows a clear shift of fire regimes in many regions in the world, which has been related to the influence of climate change. The need to understand fire regimes at regional and global level requires the development of standardized methods and tools and the development of wildfire early warning and information systems at those scales. Two successful examples of these regional and global systems are the European Forest Fire Information System (EFFIS) and the Global Wildfire Information System (GWIS). The tools and applications in both EFFIS and GWIS have been developed and customized in close cooperation with fire managers in the countries and provide essential information supporting the different phases of fire management from prevention, preparedness to restoration measures after the fires. They both support the development of regional and global policies to minimize the impact of wildfires globally.

APPENDIX 4 – Abstracts of Pre-Recorded Research Highlights Joint MedRIN and SCERIN Virtual Capacity Building Workshop 2021 and links of the PR talks. Both accessible from the meeting web page: https://gofcgold.umd.edu/meetings/joint-medrin-and-scerin-virtual-capacity-building-workshop-pre-recorded-research-0

Topic: Drought

1. Long-term assessment of drought in Romania agricultural areas based on MODIS derived DSI

Link to pre-recorded talk: https://www.youtube.com/watch?v=vzw09G7QWs4

Authors: Claudiu Angearu, Irina Ontel, George Boldeanu, Denis Mihailescu, Argentina Nertan, Vasile Craciunescu, Simona Catana, Anisoara Irimescu

Institution: National Meteorological Administration of Romania

SCERIN

Abstract: Drought Severity Index (DSI) is a very versatile index, a standardized one, that uses Evapotranspiration (ET) and Normalized Difference Vegetation Index (NDVI), to assess drought based on plant stress. The main purpose of the study was to analyze the performance of the DSI and its validation based on different data sources (meteorological data, soil moisture content, agricultural production). Also, the multi-temporal and trends analysis represented an important section of the present study. The DSI was computed based on Terra MODIS satellite image, mostly due to the temporal resolution and spatial resolution which was the best to assess such phenomenon. The study was concentrated on three major agricultural areas: 2 subdivisions of Romanian Plain (Baragan and Oltenia Plain, the most fertile land in Romania) and Banat Plain located in western Romania. DSI was computed using a 19 years archive worth of MODIS data over Romania during the vegetation season, accounted as the period from April through September. As main results it identified that Baragan and Oltenia Plain are more prone to drought than Banat Plain, as especially in the 2002, 2007, 2012 years confirmed also by the SPEI and SMA.

2. Agricultural ecosystem drought analysis based on Vegetation Health Index in Baragan Plain, Romania

Link to pre-recorded talk: https://www.youtube.com/watch?v=DUWtKGVSYlA

Author: Claudiu-Valeriu Angearu

Institution

Romanian National Meteorological Administration, 97 Bucharest-Ploieşti, Bucharest, Romania; Romanian Academy, Institute of Geography, 12 Dimitrie Racoviţă, Bucharest, Romania

SCERIN

Abstract:The drought occurrence and its severity from Baragan Plain has been identified based on Vegetation Health Index (VHI) computed from MODIS satellite products, from 30th of March to 29th of September, during 2000-2019.

According to the VHI mean and the weights of the drought types, the longest and the most severely affected periods by drought occurred in 2007, 2000, 2012, 2001 and 2003. The year 2007 is remarkable by the longest dry period, as well by the high intensity of the drought. The analysis has also highlighted the favorable years to vegetation (2004, 2005 and 2010).

The analysis of the VHI index indicates: i) drought occured at the beginning of the season in 2002 and 2003; (ii) a prolonged drought period during the vegetation season in 2000 and 2007; (iii) drought occurrence at the end of the vegetation season in 2012; iv) starting with 2008, the drought occurs more frequently in the last two months of the vegetation season; v) the drought prone areas are located in the Eastern and South-East of the Baragan Plain; vi) 36% of the agricultural area of the Baragan Plain was affected by drought over the analyzed period.

Keywords: Baragan Plain, drought, Vegetation Health Index, MODIS

Topic: Forests

3. Toward automated forest disturbance inventory using remote sensing data: Forest wildfire in Bulgaria

Link to pre-recorded talk: https://www.youtube.com/watch?v=CdmCEIghJzY

Authors: Dessislava Ganeva[1], Lachezar Filchev[1], Martin Schlerf[2], Ulrich Leopold[2], and Thomas Udelhoven[2]

Institutions

[1]Space Research and Technology Institute – Bulgarian Academy of Sciences

[2]Luxemburg Institute of Science and Technology

SCERIN

Abstract: Forest disturbance inventory service and near real time mapping has emerged as a strong need for forestry decision making and management in Bulgaria where over one third of its area is covered by forests. The results of burned areas identification and mapping using the spectral indices NBR (Normalized Burn Ratio) and dNBR (difference NBR) are very similar to the results using time series trend analysis (linear regression model and seasonal Kendall test). The Earth Observation Time Series Analysis (EOTSA) Toolbox, one component of a larger ESA-funded project called PROBA-V MEP-TPS, implements this trend analysis with Proba-V data. EOTSA gives one possible technical solution for the prototype version of another ESA-funded project Forest Disturbance Inventory using Remote Sensing (FoReS) in Bulgaria.

4. Land cover changes inside a post-fire forest scars in Serbia based on satellite Sentinel-2 data

Link to pre-recorded talk: https://www.youtube.com/watch?v=zJGdealwrOE

Authors: Olga Brovkina[1], Marko Stojanović[1], Slobodan Milanović[2]

Institutions

[1]Global Change Research Institute of the Czech Academy of Science, Brno, Czech Republic; brovkina.o@czechglobe.cz, stojanovic.m@czechglobe.cz

[2]Chair of Forest Protection, Faculty of Forestry, University of Belgrade, Belgrade Serbia; slobodan.milanovic@sfb.bg.ac.rs

SCERIN

Abstract: The study proposes a method for monitoring fire impact using Sentinel-2 satellite data by combining spectral and textural features of land cover types inside a post-fire study sites. The optimal feature combination for mapping land covers inside study sites were investigated.

Dynamic in land covers of study sites were analysed. Burnt area index for Sentinel-2 (BAIS2) was shown independent on date acquisition of satellite images to distinguish forest burn from other land covers over the analysed May–September vegetation period. Texture of study site improved the classification results. The most accurate classification method for identification of study sites land covers (with 0.84 Kappa coefficient and 0.86 overall accuracy) was based on combination of Sentinel-2 bands, BAIS2, and texture by Fourier transform. Analysis of vegetation recovery within the study sites demonstrated different recovery rates. Natural regeneration of pine was not observed, during three to six years of observations following fire events. The proposed method improves long-term post-fire environment assessment. Its findings can support planning of forest management measures needed to effectively restore forest cover.

5. Discrimination of conifer species with the use of Sentinel-2 time series and Google Earth Engine platform

Link to pre-recorded talk: https://www.youtube.com/watch?v=a7qP9vv-EFs

Authors: Stefanos Papaiordanidis[1], Georgopoulos Nikos, Alexandra Stefanidou[1], Ioannis Z. Gitas[1]

Institution

[1]Laboratory of Forest Management and Remote Sensing, Aristotle University of Thessaloniki, Greece

MedRIN

Abstract: Forest species classification is crucial for the sustainable management of forest ecosystems in terms of resource planning. Remote sensing technology has been widely used both as an alternative and in conjunction with field measurements in vegetation species classification. In this study, Sentinel-2 multispectral imagery time series were used within the Google Earth Engine cloud-based environment, for fir (Abies borisii-regis) and spruce (Pinus nigra) discrimination in Pertouli University Forest, Greece. More specifically, field measurements provided 31 samples for each of spruce and fir homogenous stands, and Sentinel-2 multi-temporal images (2017-2020) was employed for the calculation of various spectral indices (e.g., NDVI, MCARI). Furthermore, several statistics (mean, standard deviation, median, maximum value) were calculated for each class, alongside with the difference between them, to use as thresholds for spruce and fir species discrimination. A visual comparison of the mean time series for each class revealed a period (mid- June) where fir and spruce differ consistently, especially when the MCARI index is considered. To evaluate those thresholds, 37 new points for each class were extracted by photointerpretation. Similar processing steps were executed (time series building, cloud

mask application, outlier removal, spectral index calculation) and each of the statistics derived thresholds were applied. Finally, the accuracy of each statistic was calculated, and maximum index value outperformed mean, standard deviation, and median by achieving a 97.3% accuracy.

Keywords: Sentinel-2, forest species classification, time-series analysis, spectral indices, Google Earth Engine

6. Rapid assessment of post-fire forest regeneration in Coniferous ecosystems using the Google Earth Engine

Link to pre-recorded talk: https://www.youtube.com/watch?v=wOiTXVjtxFA

Authors: Maria Prodromou[1,2], Chris Danezis[1,2], Ioannis Gitas[3], Diofantos Hadjimitsis[1,2]

Corresponding Author: (ml.prodromou@edu.cut.ac.cy

Institutions:

[1] Department of Civil Engineering and Geomatics, Cyprus University of Technology, Limassol, Cyprus

[2] ERATOSTHENES Centre of Excellence, Limassol, Cyprus

[3] Department of Forestry, Laboratory of Forest Management and Remote Sensing, Aristotle

University of Thessaloniki, Greece

MedRIN

Abstract: Forest ecosystems are among the most important natural resources on the planet and play a key role in the global carbon budget. Cyprus is in Eastern Mediterranean, which is an area where forest fires occur frequently, especially during the summer period. Using satellite data, we can derive information such as indicators related to vegetation conditions, detection of active fires, and assessment of burned areas. This study aims to investigate the post-fire forest regeneration for two of the biggest fire events in coniferous forests in Cyprus. Two of the biggest fire events, which occurred in the State Forests of Cyprus during the past years were selected as study areas. The selected fire events have specifically occurred in Moniatis (June 2007) and Solea (June 2016). In

order to assess the post-fire vegetation regeneration dynamics for the case studies the vegetation indices NDVI, EVI, and NBR were computed for time series of Landsat-7, Landsat-8, and Sentinel-2 imagery using Google Earth Engine. The results of this study show how the proposed methodology allows the rapid assessment of post-fire coniferous forest regeneration on a medium-high scale based on free access satellite data in Google Earth Engine. This is very useful for the systematic monitoring of wildfires on a national level. This work has been supported by the project 'ERATOSTHENES: Excellence Research Centre for Earth Surveillance and Space-Based Monitoring of the Environment-EXCELSIOR' (https://excelsior2020.eu/) that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 857510 (Call: WIDESPREAD-01-2018-2019 Teaming Phase 2) and the Government of the Republic of Cyprus through the Directorate General for European Programmes, Coordination and Development.

Keywords: Earth observation, post-fire, forest regeneration, Google Earth Engine

Mixed topics:

7. Seasonal Changes in an Ecologically Important Wetland, Imbros Lagoon between 2016 and 2020: Evidence from High Resolution Satellite Imageries

Link to pre-recorded talk: https://www.youtube.com/watch?v=BjS4Frwlg-U

Authors: Levent GENC and Melis INALPULAT

Institutions

Computer-Agriculture-Planning (ComAgPlan)

Study Group, Canakkale Onsekiz Mart University

MedRIN, SCERIN

Abstract: The Imbros Lagoon is known to be one of the tree coastal salty lagoons in Turkey. Due to its geographic location, vegetation and water related properties, the lagoon serves as a precise zone especially for migrative bird species, in different times of the year. Increasing of evaporation in summer season manipulates the status of this specific zone and as result of the process the salt became visible whereas it becomes a hotspot for tourism activities in dry season. However, environmental issues that threat the wetland are reported whereby the most highlighted one is the impacts of climate change which would affect not only water but also biodiversity in return. In this context the study aimed to investigate the alternations in surface water area of the lagoon in respect to different seasons between 2016 and 2020 using Sentinel 2 imageries. Different water related indices and their combinations were used to identify the most discriminative one. Findings revealed that there are obvious changes in water area of the lagoon in all seasons in coherency with meteorological data. The study is still ongoing for determination of relations between water level and number of individual birds and number of species considering multi-years, and monthly.

8. Detecting changes in vegetation and climate that serve as early warning signal on land degradation using remote sensing in the Eastern Mediterranean region: Review Findings & Next Steps

Link to pre-recorded talk: https://www.youtube.com/watch?v=b_t-hDbGKiw

Authors: Filippos Eliades[1,2], Diofantos Hadjimitsis[1,2], Chris Danezis[1,2] and Felix Bachofer[3]

Institutions:

[1] Department of Civil Engineering and Geomatics, Cyprus University of Technology, Limassol, Cyprus

[2] ERATOSTHENES Centre of Excellence, Limassol, Cyprus

[3] German Aerospace Center (DLR)—Earth Observation Center (EOC), Wessling, Germany

MedRIN

Abstract: Desertification and land degradation have severe negative effects on land-use, water resources, soil stability, agriculture and biodiversity in the Mediterranean. Drylands cover 33.8% of northern Mediterranean countries: approximately 69% of Spain and 66% of Cyprus. The European Environment Agency (EEA) indicated that 8% of the territory of the European Union (mostly in Bulgaria, Cyprus, Greece, Italy, Romania, Spain and Portugal) experience a 'very high' or 'high sensitivity' to desertification. For Cyprus Island, 9.68% of the land area was found to be susceptible to land degradation.

The objective of this literature review is to provide a detailed synthesis of the main contributions of the global vegetation changes research to the development of environmental knowledge based on land degradation/ desertification and EO-based science and technology, identifying the current fields of research and possible research gaps. We selected screened more than 1000 scientific papers from which we reviewed approximately 300 papers, identifying the objectives and remote sensing data used to characterize vegetation changes.

Considering that the land degradation process is actually the degradation of vegetation and the decline in productivity, it is reasonable to use vegetation indicators such as NDVI, EVI: enhanced vegetation index, LAI: leaf area index etc or productivity parameters such as GPP: gross primary productivity, NPP etc to characterize the evolution of desertification.

Overall, a detailed EO-based time-series monitoring and analysis of un-altered natural vegetation could provide indicators that may serve as early warning signals for the scale and level of climate change induced effects on vegetation and ecosystems that might lead to land degradation and even to desertification.

Keywords: phenology, remote sensing, desertification, land degradation, early warning signal, Cyprus

9. Integrated, timely relevant application of Sentinel data fusion in agricultural sector

Link to pre-recorded talk: https://www.youtube.com/watch?v=rOIXuMq2rBM

Authors: L. Ronczyk[1], B. Keller[2], G. Farkas[1], Gy. Harka[1], F. Collivinarelli[3], F. Holecz[3]

Institutions:

[1] University of Pécs

[2] Dalmand Corporation

[3] sarmap SA

email: h2o@gamma.ttk.pte.hu

SCERIN

Abstract: The ultimate objective of this research project was to develop and implement an operational and customized service and generate 42 dedicated products for four major crop types (winter wheat, winter barley, rapeseed, and corn) based on Sentinel-1/-2 time-series for Dalmand corporation. The Sentinel based Complex Agri-Industrial Application (SCAIA) - running on an Unix-like operating system including HPCs and cloud computing server infrastructures – is the joint effort of the University of Pécs, sarmap SA, and Dalmand Corporation supported by the European Space Agency (ESA) and the National Information Infrastructure Development Institute Supercomputing Infrastructure (NIIF HPC). The prototype service has proved its feasibility and made the first step to its practical implementation. To reach this goal we had to complete a very complex task.

10. Multidimensional model for monitoring status of aquatic environment

Link to pre-recorded talk: https://www.youtube.com/watch?v=2YOD8nFYV-4

Authors: Gordana Jakovljević[1] and Miro Govedaricas[2]

Institutions:

[1]Faculty of Architecture, Civil Engineering and Geodesy, University of Banja Luka, Bosnia and Herzegovina

[2]Faculty of Technical Science, University of Novi Sad, Serbia

SCERIN

Abstract: Aquatic ecosystems are among most sensitive ecological environments. The 2030 Agenda for Sustainable development emphasizes the water-related issues by setting SDG 6. The comprehensive and efficient monitoring of water quality and quantity need to be established in order to understand current status, polluters and to prevent feature degradation.

Remote sensing data and new cloud technologies enables development of new approach for management of water resources. Based on those facts the multidimensional model was proposed. The multidimensional model covering all phases from acquisition to distribution of data by providing clearly defined methodologies for automatic extraction of water body geometry, topology, and attributes. The model is based on AI technology allowing development of full automation processing procedures and usage of remote sensing data in near-real or real time. The implementation framework based on Google Colab, Python, and Jupyter enabled the development of a ready-to-use. The multidimensional model improves several aspects of monitoring results. It significantly increases the frequency of water body geometry and water quality monitoring. In addition, it provide monitoring of water quality spatial variations. The resulting information can be used for monitoring of process towards the achievement of SDG, including Indicator 6.3.2., Indicator 6.4.2., Indicator 6.6.1., and Indicator 14.1.1.

11. Intercomparison of Ground-based Radar Data for Precipitation Monitoring in the Area of Cyprus

Link to pre-recorded talk: https://www.youtube.com/watch?v=D0ojlwm0KDU

Authors: Eleni Loulli[1], Johannes Bühl[2], Silas Michaelides[1], Athanasios Loukas[3], Diofantos G. Hadjimitsis[1]

Institutions:

[1] Cyprus University Of Technology & ERATOSTHENES Centre Of Excellence, Cyprus,

[2] Leibniz Institute For Tropospheric Research (TROPOS), Germany

[3] Aristotle University Of Thessaloniki, Greece

MedRIN

Abstract: Drought, being a multidimensional phenomenon, starts imperceptibly, advances slowly and cumulatively, and its consequences show up gradually. Cyprus has an excellent location for studying meteorology and climatology. This study uses observations from

NASA's Global Precipitation Measurement (GPM) Mission to calibrate the data from the two ground-based radars of the Department of Meteorology (DoM). The DPR (Dual-frequency Precipitation Radar) aboard of GPM is applied in order to derive the reflectivity and the respective rain rate at the ground with a spatial resolution of 5-25km for 120km wide swath. The ground-based radars scan in PPI mode with the radar holding an elevation angle constant and varying its azimuth angle, and provide raw information with a spatial resolution of 0.1° and a radius of 150km. The two datasets are interpolated on a universal grid in order to enable the calibration of the raw data and their validation with the GPM data. The results will contribute to the development of an automated method for the estimation of the precipitation budget over the area of Cyprus and thus, drought monitoring in the region of the eastern Mediterranean.

The presented work is under the EXCELSIOR project that received funding from the European Union [H2020-WIDESPREAD-04-2017: Teaming Phase2] project under grant agreement no. 857510, and from the Republic of Cyprus.

Keywords: remote sensing, precipitation, radar, GPM, eastern Mediterranean

12. Status of built-up areas and artificial impervious surfaces of Bulgarian coastal municipalities based on GHSL and GAIA data for the last four decades

Link to pre-recorded talk: https://www.youtube.com/watch?v=g42vWpOtzWY

Authors: Assoc. Prof. Ph.D., Lachezar Filchev[·] and Assoc. Prof. Dr. Eng. Lyubka Pashova[·]

Institutions

[·]Remote Sensing and GIS Department, Space Research and Technology Institute, Bulgarian Academy of Sciences (SRTI-BAS), Acad. Georgi Bonchev Str., Block 1, 1113 Sofia, Bulgaria;

[·]Department Geodesy; National Institute of Geophysics, Geodesy and Geography, Bulgarian Academy of Sciences (NIGGG-BAS), Acad. G. Bonchev Str., Bock 3, 1113 Sofia, Bulgaria

SCERIN

Abstract: The built-up areas in the Bulgarian coastal municipalities have grown significantly since the democratic changes in the country in the 1990s. The rapid pace of construction negatively affected the environment and led to imbalances in vulnerable coastal ecosystems. The main factors contributing to the increase of Artificial Impervious Surfaces (AIS) are urbanization, industrialization and tourism development. A brief overview of the dynamics of the impervious surface in the municipalities along the Bulgarian Black Sea coast in the period 1975-2018 was made. Data from the Global Artificial Impermeable Surface (GMIS) through the Google Earth Engine and GHSL platform (JRC-EC) and GAIA were used. The comparison results show a trend of increase and spread of AIS over the last four decades as the minimal was in the period 1990–2000 and were maximum in 2000–2006 for almost all 14 Bulgarian Black Sea municipalities. The general changes in the southern part of the Black Sea coastal zone are significantly more than those in the northern. The dynamics of changes in urban areas with a maximum area of changes are in Nessebar, Kavarna, Balchik and Sozopol. The last decade dynamic of the Urban Heat Islands (UHI) using Global Surface UHI Explorer (https://yceo.users.earthengine.app/view/uhimap) confirm the findings for Burgas and Varna metropolitan areas. Finally, recommendations have been made for the use of the result for national maritime spatial planning.

Keywords: Impervious surface, Built-up, UHI, GHSL, GAIA, Copernicus Program, Landsat, Bulgarian Black Sea coast

13. Imaging Spectroscopy Of Shallow Coastal Waters

Link to pre-recorded talk: https://www.youtube.com/watch?v=ZXBwcgLkZXg

Authors: Despina Makri[1,2], Dimosthenis Traganos[3], Athos Agapiou[1,2], Diofantos Hadjimitsis[1,2]

Institutions:

[1] Cyprus University of Technology, Cyprus

[2] Eratosthenes Centre of Excellence, Limassol, Cyprus

[3] German Aerospace Center, Helmholtz Association of German Research Centers (HZ) Cologne, Germany

MedRIN

Abstract: Imaging spectroscopy in shallow coastal waters is a newly developed technology advance that promises to fill the gap between the traditional remote sensing techniques and the land imaging sensors (Landsat-8 and Sentinel-2) with the airborne hyperspectral imaging systems. The monitoring of coastal waters was implemented with multispectral satellite data with medium or higher spatial resolution, providing a large coverage area. The extracted information gave good results for monospecific, continuous, and large seagrass meadows. With hyperspectral remote sensing, we can differentiate the submerged vegetation and coral reef taxa, enabling applications for fine tracking of biodiversity or the identification of resident or invasive species. Challenges and limitations in coastal water observations still exist, as those aquatic ecosystems are characterized by high complexity. Another critical issue is the atmospheric correction over the shallow coastal waters, as it is essential to implement different approaches compared to land or ocean applications. In the near future, image spectroscopy will be paired with cloud computing, artificial intelligence, and spaceborne optical and lidar data (e.g., Sentinel and Landsat series, and ICESat-2) to scale up to Earth Observation of shallow coastal waters at multiple levels (e.g., water quality, bathymetry, and seabed composition) across national to global scales.

APPENDIX 5 – Questions for real-time survey in MENTIMETER Session at Joint MedRIN / SCERIN , Workshop, 17 June 2021

1. What is the primary LCLUC topic area that you believe MedRIN and SCERIN should jointly collaborate on?

a) Drought Prediction / Monitoring;
b) Forest monitoring (e.g., disturbances, health, and biomass changes)
c) Agricultural Land Cover Changes (agricultural abandonment, urban expansion, etc.);
d) Validation/verification of global satellite products at a regional/local scale
e) Water management and Land Cover impacts (river watersheds, catchments, dams
f) Ecosystem health
g) Wildfire Prediction / Monitoring / Post-Fire Recovery
h) Marine Ecosystem Change Monitoring

2. What is your usual form of collaboration or engagement with colleagues from other institutes (either within your nation or with international community)?

a) Through joint research projects;
b) Joint authorship of publications on a specific research topics;
c) Implementing/advancing common tools for analysis and validation/verification
d) Joint venues / conference / meetings interaction
e) Tutorials for remote to address common issues

3. What issues do you encounter that prevent or make collaboration difficult?

a) Current geo-political issues
b) Geographic, climatic and ecological differences
c) Funding sources
d) Communication difficulties (language barriers, lacking of face-to-face interactions, etc.)

4. What future topics should be added to the next SCERIN / MedRIN Joint Workshop in 2023?

a) Drought monitoring / impacts in the European Region
b) Shifts in Regional Climate Affecting Land Cover Dynamics
c) Water Issues in the SCERIN / MEDRIN Regions (salinity, water quality, marine ecosystems changes, etc.)
d) New / Future EO data sets and methodologies to support change discrimination in land cover / land use change
e) Migration / Immigration and effects on LCLUC in the region of MedRIN and SCERIN

5. Who are the primary stakeholders that you engage with in EO in your research area?

a) Non-governmental organizations
b) Private sector
c) National ministries and agencies (health, environment, agriculture, energy, disasters, economy, etc.)
d) international entities/ organizations (example: UN, FAO, etc.)
e) Universities
f) Other (not listed above)

6. What are the main roadblocks to improving capacity building / uptake of EO data for LCLUC issues?

a) Interoperability of validation data of satellite products
b) Funding opportunities focused on Capacity Building efforts are limited

c) Lack of “home” institution resources to apply learned EO tools to sustain capacity building

7. Is there a likelihood of you attending an "in-person" Joint MedRIN / SCERIN Workshop in 2023 or a Virtual Workshop? Or a combination of "in-person and virtual"?

a) In-Person Workshop
b) Virtual Workshop
c) Combination of In-Person and Virtual Workshop

8. What is your employment category?

a) Private Industry
b) Academia
    1) Faculty
    2) Student
c) Non-Profit
d) Government Agency
e) International Organization (UN, EC, etc.)

9. What Regional Network do you affiliate with?

a) SCERIN
b) MEDRIN
c) Both SCERIN & MEDRIN
d) Other

10. What Country are you from / representing?

a) Albania, b) Armenia, c) Austria, d) Azerbaijan, e) Belarus, f) Belgium, g) Bosnia & Herzegovina, h) Bulgaria, i) Croatia, j) Cyprus, k) Czechia, l) France, m) Georgia, n) Germany, o) Greece, p) Hungary, q) Italy, r) Malta, s) Moldova, t) Montenegro, u) North Macedonia, v) Poland, w) Romania, x) Serbia, y) Slovakia, z) Slovenia, aa) Spain, bb) Turkey, cc) Ukraine, dd) United Kingdom, ee) United States. ff) other (can enter?)

APPENDIX 6

List of participants during the DAY 1, June 15, 2021 : 77 participants

Out of that, 42 participants were associated with MedRIN, 18 with SCERIN, 1 with CARIN, 1 with CARIN /SCERIN and 5 identified themselves associated with MedRIN /SCERIN networks. One participant was not identified – he gave only his first name (marked in yellow line below).

First Name	Last Name	Country/ Region	Organization	Regional Network Affiliation
Aaron	Sparks	USA	University of Idaho	MedRIN
Abhijit	Chatterjee	India	Climate Change Specialist	None
Adarsh	Deepak	USA	Taksha Institute	AIAA
Agnieszka	Lukaszczyk	Belgium	European Affairs at Planet	None
Alexandra	Stefanidou	Greece	Aristotle University, Thessaloniki, Greece	MedRIN
Anastasia	Yfantidou	Greece	National Obsrvatory of Athens	MedRIN
Anatoly				
Andreas	Christofe	Cyprus	Cyprus University of Technology	MedRIN
Andreas	Anayiotos	Cyprus	ERATOSTHENES Center of Excellence	MedRIN
Angel	Fernandez	Spain	GMV	None
Anisoara	Irimescu	Romania	National Meteorological Adminstration	SCERIN
Argyro	Nisantzi	Cyprus	Cyprus University of Technology	MedRIN
Arnon	Karnieli	Israel	Ben-Gurion University of the Negev	MedRIN
Asterios	Tselepis	Greece	Aristotle University of Thessaloniki	MedRIN
Cansu	Besel	Turkey	Karadeniz Technical University	MedRIN
Chariton	Kalaitzidis	Greece	CIHEAM-Mediterranean Agronomic Institute of Chania	MedRIN
Chris	Danezis	Cyprus	Cyprus University of Technology	MedRIN
Chris	**Justice**	USA	University of Maryland	GOFC-GOLD
Christodoulos	Mettas	Cyprus	Cyprus University of Technology	MedRIN
Christos	Theocharidis	Cyprus	Cyprus University of Technology	MedRIN
Claudiu	Angearu	Romania	Researcher	SCERIN
Clay	**Oboth**	USA	START	GOFC-GOLD
Dc Frn Spyridon	Papavasileiou	Cyprus	Cyprus University of Technology	MedRIN

Despina	Makri	Cyprus	Cyprus University of Technology	MedRIN
Dessislava	Ganeva	Bulgaria	Space Research and Technology Institute - Bulgarian Academy of Sciences	SCERIN
Dimitris	Kakoullis	Cyprus	Cyprus University of Technology	MedRiIN
Diofantos	**Hadjimitsis**	Cyprus	CYPRUS UNIVERSITY OF TECHNOLOGY	MedRIN
Eleni	Loulli	Cyprus	Cyprus University of Technology	MedRIN
Evagoras	Evagorou	Cyprus	Cyprus University of Technology	None
Filippos	Eliades	Cyprus	Cyprus University of Technology	MedRIN
Garik	**Gutman**	USA	NASA	GOFC-GOLD
Geoff	Henebry	USA	MICHIGAN STATE UNIVERSITY	CARIN
George	Boldeanu	Romania	Meteo Romania	SCERIN
Gordana	Jakovljevic	Bosnia and Herzegovina	University of Banja Luka	SCERIN and MedRIN
Ioannis	**Gitas**	Greece	Aristotle University of Thessaloniki	MedRIN
Ioannis	Manakos	Greece	Centre for Research and Technology Hellas, Information Technologies Institute	SCERIN and MedRIN
Jana	**Albrechtova**	Czech Republic	Charles University Prague	SCERIN
Jon	**Padgham**	USA	START	GOFC-GOLD
Julia	Yague	Spain	GMV Aerospace and Defence S.A.U.	none / SCERIN
Krishna	**Vadrevu**	USA	NASA	GOFC-GOLD
Kyriacos	Themistocleous	Cyprus	Cyprus University of Technology	MedRIN
Kyriacos	Neocleous	Cyprus	Cyprus University of Technology	MedRIN
Lachezar	Filchev	Bulgaria	Space Research and Technology Institute, SRTI-BAS	SCERIN
Lena	Hunt	Czech Republic	Charles University	SCERIN
Levent	Genc	Turkey	COMU	MedRIN
Levente	Ronczyk	Hungary	Uni Pécs	SCERIN
Luca	Montanarella	Italy	European Commission, Joint Research Centre	MedRIN
Lucie	**Kupkova**	Czech Republic	Charles University Prague	SCERIN
Lyubka	Pashova	Bulgaria	NIGGG - BAS	SCERIN
Maria	Banti	Greece	Research Center	SCERIN and MedRIN
Maria	Prodromou	Cyprus	Cyprus University of Technology	MedRIN
Marina	Pekri	Cyprus	Cyprus University of Technology	MedRIN
Melis	Inalpulat	Turkey	Canakkale 18 Mart University	MedRIN
Michail	Sismanis	Greece	CERTH	SCERIN and MedRIN

Mihai	Nita	Romania	Transilvania University of Brasov	SCERIN
Miro	Govedarica	Serbia	University	MedRIN
Monika Anna	Tomaszewska	USA	MSU	SCERIN and CARIN
Nektarios	Chrysoulakis	Greece	Foundation for Research and Technology - Hellas	MedRIN
Nicholas	Kyriakides	Cyprus	Cyprus University of Technology	MedRIN
Nikolaos	Papaioannou	Greece	Aristotle University	MedRIN
Nikos	Georgopoulos	Greece	Aristotle University	MedRIN
Olga	Brovkina	Czech Republic	Global Change Research Institute, CAS	SCERIN
Petr	Lukes	Czech Republic	Global Change Research Institute, AS CR	SCERIN
Petya	**Campbell**	USA	University of Maryland Baltimore County	SCERIN
Pol	Kolokoussis	Greece	University	MedRIN
Polina	Sokratous	Cyprus	Cyprus University of Technology	MedRIN
Ravi	Deepak	USA	Taksha Institute	MedRIN
Rodanthi Elisavet	Mamouri	Cyprus	Cyprus University of Technology	MedRIN
Sergii	Skakun	USA	University of Maryland	SCERIN
Stanislaw	Lewinski	Poland	Space Research Centre (SRC) of Polish Academy of Sciences	SCERIN
Stefanos	Papaiordanidis	Greece	Aristotle University of Thessaloniki	MedRIN
Thomaida	Polydorou	Cyprus	Cyprus University of Technology	MedRIN
Thomas	Katagis	Greece	Aristotle University of Thessaloniki	MedRIN
Vassilia	Karathanassi	Greece	National Technical University of Athens	MedRIN
Vincent	**Ambrosia**	USA	NASA / CA. State Univ.- Monterey Bay (CSUMB)	MedRIN
Vladimir	Starodubtsev	Ukraine	National University of Life and Environmental Sciences of Ukraine	SCERIN
Zuzana	Lhotakova	Czech Republic	Charles University, Faculty of Science	SCERIN

List of participants during the DAY 2, June 16, 2021: 80 participants

Out of that, 38 participants were associated with MedRIN, 19 with SCERIN, 1 with CARIN, 1 with CARIN / SCERIN and 5 identified themselves associated with MedRIN /SCERIN networks. Six participants were not identified (marked in yellow lines below).

First Name	Last Name	Country/ Region	Organization	Regional Network Affiliation
Aaron	Sparks	USA	University of Idaho	MedRIN
Adarsh	Deepak	USA	Taksha Institute	AIAA
Alexandra	Stefanidou	Greece	Aristotle University, Thessaloniki, Greece	MedRIN
Ali	Wheida	Egypt	National Research Centre-Egypt	MedRIN
Anastasia	Yfantidou	Greece	National Observatory of Athens	MedRIN
Andreas	Christophe	Cyprus	Cyprus University of Technology	MedRIN
Angel	Fernandez	Spain	GMV	None
Anisoara	Irimescu	Romania	National Meteorological Adminstration	SCERIN
Asterios	Tselepis	Greece	Aristotle University of Thessaloniki	MedRIN
Athanasios	Loukas	Greece	Aristotle University of Thessaloniki	MedRIN
Brice	Mora	France	CS GROUP	MedRIN
Cansu	Besel	Turkey	Karadeniz Technical University	MedRIN
Chariton	Kalaitzidis	Greece	CIHEAM-Mediterranean Agronomic Institute of Chania	MedRIN
Chris	**Justice**	USA	University of Maryland	GOFC-GOLD
Christiana	Papoutsa	Cyprus	Cyprus University of Technology / ERATOSTHENES Centre of Excellence	MedRIN
Christodoulos	Mettas	Cyprus	Cyprus University of Technology	MedRIN
Christos	Sotiropoulos			
Christos	Theocharidis	Cyprus	Cyprus University of Technology	MedRIN
Claudiu	Angearu	Romania	Researcher	SCERIN
Clay	**Oboth**	USA	START	GOFC-GOLD

Denitsa	Borisova	Bulgaria	Space Research and Technology Institute Bulgarian Academy of Sciences	MedRIN /SCERIN
Despina	Makri	Cyprus	Cyprus University of Technology	MedRIN
Diofantos	**Hadjimitsis**	Cyprus	CYPRUS UNIVERSITY OF TECHNOLOGY	MedRIN
Eleni	Loulli	Cyprus	Cyprus University of Technology	MedRIN
Eva	Neuwirthova	Czech Republic	Charles University	SCERIN
Evagoras	Evagorou	Cyprus	Cyprus University of Technology	MedRIN
Filippis	Illia			
Filippos	Eliades	Cyprus	Cyprus University of Technology	MedRIN
Garik	**Gutman**	USA	NASA	GOFC-GOLD
Geoff	Henebry	USA	MICHIGAN STATE UNIVERSITY	CARIN
George	Boldeanu	Romania	Meteo Romania	SCERIN
George	Palas			
Giorgos	Somarakis	Greece	Foundation for Research and Technology - Hellas (FORTH)	MedRIn
Gordana	Jakovljevic	Bosnia and Herzegovina	University of Banja Luka	MedRIN
Imen	Bouhamed	Greece	Environmental Management at the Mediterranean Agronomic Institute of Chania, Greece	MedRIN
Ioannis	**Gitas**	Greece	Aristotle University of Thessaloniki	MedRIN
Ioannis	Manakos	Greece	Centre for Research and Technology Hellas, Information Technologies Institute	SCERIN and MedRIN
Jana	**Albrechtova**	Czech Republic	Charles University Prague	SCERIN
Jeff	Masek	USA	NASA	None
Jon	**Padgham**	USA	START	GOFC-GOLD
Katarina	Merganicova	Slovakia	Slovak Academy of Sciences,Department of Biodiversity of Ecosystems and Landscape, Institute of Landscape Ecology	SCERIN

Krishna	**Vadrevu**	USA	NASA	GOFC-GOLD
Kyriacos	Neocleous	Cyprus	Cyprus University of Technology	MedRIN
Lena	Hunt	Czech Republic	Charles University	SCERIN
Levent	Genc	Turkey	COMU	MedRIN / SCERIN
Levente	Ronczyk	Hungary	Uni Pécs	SCERIN
Lucie	**Kupkova**	Czech Republic	Charles University Prague	SCERIN
Maria	Banti	Greece	Research Center	SCERIN and MedRIN
Maria	Prodromou	Cyprus	Cyprus University of Technology	MedRIN
Marios	Tzouvaras	Cyprus	Cyprus University of Technology	MedRIN
Marta Gomez	Gimenez	Spain	GMV	SCERIN
Melis	Inalpulat	Turkey	Canakkale 18 Mart University	MedRIN
Michail	Sismanis	Greece	CERTH	SCERIN and MedRIN
Mihai Daniel	Nita	Romania	Transilvania University of Brasov	SCERIN
Milto	Miltiadou	Greece	Aristotle University, Thessaloniki, Greece	MedRIN
Mohamed Berrada	Alami			
Monika Anna	Tomaszewska	USA	MSU	SCERIN and CARIN
Neofitos	Vlotomas			
Nikoletta	Papageorgiou	Cyprus	Cyprus University of Technology	MedRIN
Nikos	Georgopoulos	Greece	Arisotle University of Thessaloniki	MedRIN
Olga	Brovkina	Czech Republic	Global Change Research Institute, CAS	SCERIN
Petr	Lukes	Czech Republic	Global Change Research Institute, AS CR	SCERIN
Petya	**Campbell**	USA	University of Maryland Baltimore County	SCERIN
Pol	Kolokoussis	Greece	University	MedRIN

Polina	Sokratous	Cyprus	Cyprus University of Technology	MedRIN
Ravi	Deepak	USA	www.Taksha.org	none
Rodanthi Elisavet	Mamouri	Cyprus	Cyprus University of Technology	MedRIN
Roman				
Sergii	Skakun	USA	University of Maryland	SCERIN
Silas	Michaelides	Cyprus	Cyprus University of Technology	MedRIN
Skevi				
Stanislaw	Lewinski	Poland	Space Research Centre (SRC) of Polish Academy of Sciences	SCERIN
Stefanos	Papaiordanidis	Greece	Aristotle University of Thessaloniki	MedRIN
Tatjana	Veljanovski	Slovenia	Research Centre of the Slovenian Academy of Sciences and Arts	SCERIN
Thomaida	Polydorou	Cyprus	Cyprus University of Technology	MedRIN
Thomas	Katagis	Greece	Aristotle University of Thessaloniki	MedRIN
Vassilia	Karathanassi	Greece	National Technical University of Athens	MedRIN
Vincent	**Ambrosia**	USA	NASA	MedRIN
Vladimir	Starodubtsev	Ukraine	National University of Life and Environmental Sciences of Ukraine	SCERIN
Zuzana	Lhotakova	Czech Republic	Charles University, Faculty of Science	SCERIN

List of participants during the DAY 3, June 17, 2021 : 61 participants

Out of that, 35 participants were associated with MedRIN, 14 with SCERIN, 1 with CARIN, 1 with CARIN /SCERIN and 3 identified themselves associated with MedRIN /SCERIN networks. Three participants were not identified – he gave only his first name (marked in yellow lines below).

First Name	Last Name	Country/ Region	Organization	Regional Network Affiliation
Alexandra	Stefanidou	Greece	Aristotle University, Thessaloniki, Greece	MedRIN
Anisoara	Irimescu	Romania	National Meteorological Adminstration	SCERIN
Argyro	Nisantzi	Cyprus	Cyprus University of Technology	MedRIN
Asterios	Tselepis	Greece	Aristotle University of Thessaloniki	MedRIN
Athanasios	Loukas	Greece	Aristotle University of Thessaloniki	MedRIN
Chariton	Kalaitzidis	Greece	CIHEAM-Mediterranean Agronomic Institute of Chania	MedRIN
Chris	Danezis	Cyprus	Cyprus University of Technology	MedRIN
Christiana	Papoutsa	Cyprus	Cyprus University of Technology / ERATOSTHENES Centre of Excellence	MedRIN
Christodoulos	Mettas	Cyprus	Cyprus University of Technology / ERATOSTHENES Centre of Excellemce	MedRIN
Christoforos	Christofi	Cyprus	A & C Christofi Ltd.	MedRIN
Christos	Theocharidis	Cyprus	Cyprus University of Technology	MedRIN
Clay	**Oboth**	USA	START	GOFC-GOLD
Denitsa	Borisova	Bulgaria	Space Research and Technology Institute Bulgarian Academy of Sciences	MedRiN
Despina	Makri	Cyprus	Cyprus University of Technology	MedRIN
Dimitris	Kakoullis	Cyprus	Cyprus University of Technology	MedRIN
Diofantos	**Hadjimitsis**	Cyprus	CYPRUS UNIVERSITY OF TECHNOLOGY	MedRIN
Eleni	Loulli	Cyprus	Cyprus University of Technology	MedRIN
Eva	Neuwirthova	Czech	Charles University	SCERIN

		Republic		
Evagoras	Evagorou	Cyprus	Cyprus University of Technology	MedRIN
Filippos	Eliades	Cyprus	Cyprus University of Technology	MedRIN
Garik	**Gutman**	USA	NASA	GOFC-GOLD
Geoff	Henebry	USA	MICHIGAN STATE UNIVERSITY	CARIN
George	Boldeanu	Romania	Meteo Romania	SCERIN
Giorgos	Somarakis	Greece	Foundation for Research and Technology - Hellas (FORTH)	MedRIn
Gordana	Jakovljevic	Bosnia and Herzegovina	University of Banja Luka	MedRIN / SCERIN
Gregory	Taff	USA	World Resources Institute	SCERIN
Haris	Zacharatos	Cyprus	SME - CELLOCK LTD	MedRIN
Ioannis	**Gitas**	Greece	Aristotle University of Thessaloniki	MedRIN
Jana	**Albrechtova**	Czech Republic	Charles University Prague	SCERIN
Jon	**Padgham**	USA	START	GOFC-GOLD
Katarina	Merganicova	Slovakia	Slovak Academy of Sciences,Department of Biodiversity of Ecosystems and Landscape, Institute of Landscape Ecology	SCERIN
Krishna	**Vadrevu**	USA	NASA	GOFC-GOLD
Kyriacos	Neocleous	Cyprus	Cyprus University of Technology	MedRIN
Kyriacos	Themistocleous	Cyprus	Eratosthenes Centre of Excellence	MedRIN
Lena	Hunt	Czech Republic	Charles University	SCERIN
Levent	Genc	Turkey	COMU	MedRIN / SCERIN
Levente	Ronczyk	Hungary	Uni Pécs	SCERIN
Lucka				
Lyubka	Pashova	Bulgaria	NIGGG - BAS	SCERIN
Marcin	Folwarczny			
Maria	Prodromou	Cyprus	Cyprus University of Technology	MedRIN

Marina	Pekri	Cyprus	Cyprus University of Technology	MedRIN
Marios	Tzouvaras	Cyprus	Cyprus University of Technology	MedRIN
Marta Gomez	Gimenez	Spain	GMV	SCERIN
Melis	Inalpulat	Turkey	Canakkale 18 Mart University	MedRIN
Michail	Sismanis	Greece	CERTH	SCERIN and MedRIN
Mihai Daniel	Nita	Romania	Transilvania University of Brasov	SCERIN
Miro	Govedarica	Serbia	University	MedRIN
Monika Anna	Tomaszewska	USA	MSU	SCERIN and CARIN
Nikos	Georgopoulos	Greece	Aristotle University of Thessaloniki	MedRIN
Oleh	Chaskovskyy	Ukraine	Ukranian National Forestry Institute	SCERIN
Olga	Brovkina	Czech Republic	Global Change Research Institute, CAS	SCERIN
Petya	**Campbell**	USA	University of Maryland Baltimore County	SCERIN
Pol	Kolokoussis	Greece	University	MedRIN
Ravi	Deepak	USA	www.Taksha.org	MedRIN
Roman				
Silas	Michaelides	Cyprus	Cyprus University of Technology	MedRIN
Stefanos	Papaiordanidis	Greece	Aristotle University of Thessaloniki	MedRIN
Thomais	Polydorou	Cyprus	Cyprus University of Technology	MedRIN
Vassilia	Karathanassi	Greece	National Technical University of Athens	MedRIN
Vincent	**Ambrosia**	USA	NASA	MedRIN