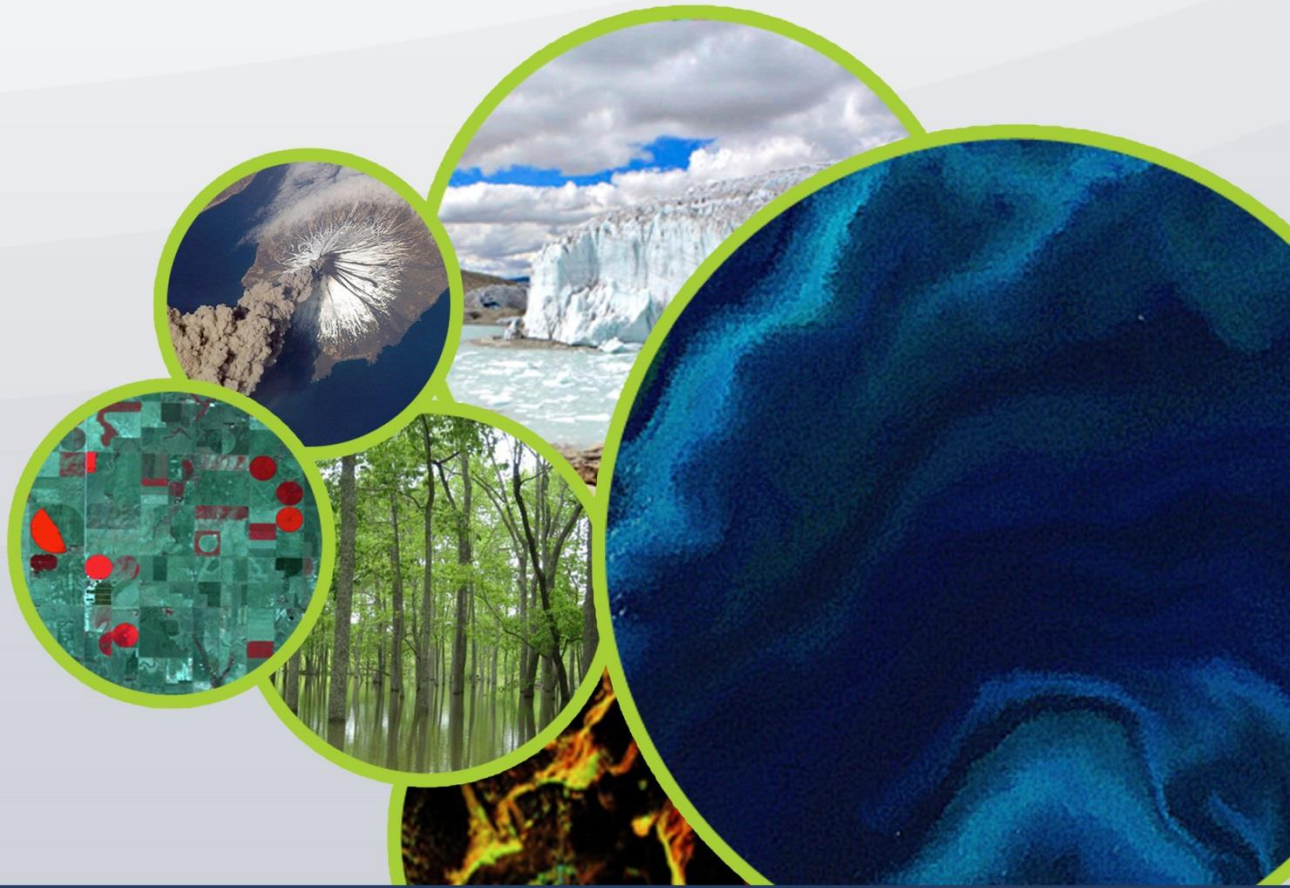




Committee on Earth Observation Satellites



Earth Observation Training, Education, and
Capacity Development Network (EOTEC DevNet)
Pilot Initiation Summary

CEOS Deliverable CB-20-05/CB-46

Earth Observation Training, Education, and Capacity Development Network

Initiation Phase Report

October 5, 2021

Background

As described in the EOTEC DevNet concept paper endorsed by CEOS at SIT-36, a gap exists in the coordination of the efforts to strengthen sustained capacity and use of Earth observations (EO) to meet user needs in support of the sustainable development agenda. Currently, multiple networks contribute to EO capacity development. Each of these groups includes many contributors across a global network. Each has overlapping interests and existing relationships that can be further coordinated and leveraged to bring the power of EO to more users. In addition to these networks, the United Nations system has multiple related networks whose focus may include use of EO but often have broader training objectives and/or specific target audiences.

The Earth Observation Training, Education, and Capacity Development Network, or EOTEC DevNet, can improve coordination and enhancement of EO space-based asset providers and training providers in support of key global development outcomes. Part of the CEOS Work Plan 2020-2022, the EOTEC DevNet initiation plan begins with a two-year pilot with WGCapD. Upon evaluation of the pilot, including approaches to sustainability, the open initiative may then be based elsewhere in the network. EOTEC DevNet is jointly led by CEOS WGCapD, GEO CD-WG, CGMS VLab, WMO, and UNOOSA, along with their affiliated training centers, such as CRECTEALC. Key partners will be added as the relevant networks continue to connect.

EOTEC DevNet will facilitate leadership coordination meetings and a community of practice among capacity building professionals that serves as a marketplace to facilitate information and knowledge flows and greater global and regional communication will be enabled between the participants in the multiple networks. Through greater communication, EOTEC DevNet will improve strategic and ad hoc coordination of activities. Through systematic assessment of relevant capacity development resources and current state of skills to use them, gaps will be identified, and approaches developed to close these gaps, ultimately leading to improved application of EO to meet the sustainability framework goals by 2030.

Purpose of Initiation Phase Report

The EOTEC DevNet initiation plan is outlined in this [overview paper](#), authored in the first quarter of 2021, which was endorsed by CEOS SIT on March 23, 2021. The paper describes the purpose, scope, and goals of the EOTEC DevNet pilot and prescribes activities to be completed throughout the pilot phase, which runs from March 2021 - March 2023.

This report provides updates on the status of Pilot Phase 1 action items. Pilot Phase 1 was performed March - November 2021. We successfully completed eight out of ten Phase 1 activities. We've chosen to continue two of the activities: to move beyond disaster risk reduction in our information collection "trackers," and to extend focus beyond training to education and more fully address gaps/overlaps, use cases, and evidence. We recommend proceeding to Phase 2, to be conducted November 2021 – March 2023. We will ask for endorsement at the CEOS Plenary in November 2021.

Action Item	Status	Comment
1. Form a task team.	Complete	See member list below
2. Analyze WGCapD survey results and identify additional leadership and regional community of practice participants.	Complete	Additional outreach is ongoing
3. Develop Theory of Change and monitoring and evaluation approaches to measure the impact of EOTEC DevNet.	Complete	At the September 10 leadership meeting, leadership approved a final draft theory of change as the basis for elaborating the monitoring and evaluation approach in Phase 2. <u>Current Version</u>
4. Continue to develop concept of operations, define resource and effort requirements (develop initial BOE and steps so far), and identify support sources for the pilot stage.	Complete	Concept of operations drafted, resource and effort requirements estimated, support sources - TBC
5. Identify ways to collect training, education, and capacity development gaps, overlaps, and resources that inform disaster risk reduction planning, climate adaptation and mitigation planning, and associated vulnerability assessments (conversation about pilot role of nexus rather than DRR focus) that use satellite and other space-based asset data.	Partially complete	Need to expand beyond initial DRR focus
6. Network leads will work within their respective governance structures to gain approvals and confirm support of participation.	Complete	
7. Coordination and logistics for initial regional meetings & leadership meeting: confirm dates, develop invitation list, plan agenda, and conduct outreach.	Complete	
8. Host regional meetings in June 2021 and a leadership meeting in September 2021.	Complete	
9. Define the scope of the pilot activity collecting training, education, and capacity development gaps, overlaps, and resources relating to the pilot topic of floods. Gaps include skills gaps in users' abilities to use satellite and other space-based asset data. Training resources include actual training materials and approaches, use cases, and evidence that people are using satellite information successfully.	Partially complete	More focus is needed on education, gaps/overlaps, use cases and evidence
10. Summarize Phase 1 results to inform respective network planning and the global stocktake.	Complete	This document is the Phase 1 summary.

Status of the Phase 1 Action Items:

1. Formation of a task team that expands upon the work and contributions of the initial organizing team.

An initial task team has been formed to help advance the items within the pilot phase alongside the leadership team. This task team may evolve over time, but currently consists of the following members:

WGCapD - Nancy Searby, Pham Thi Mai Thy

GEO - Joost Teuben, Allison Craddock, Jiali Shang

WMO - Kenneth Holmlund, Bernadette Connell, Luciane Veeck

UNOOSA - Jorge Del Rio Vera

Others - Christopher Barnes, Sergio Camacho, Robert Eckardt

EOTEC DevNet Secretariat - Sydney Neugebauer, Erin Martin, Yasha Moz

Throughout the second half of Phase 1, the task team met on a roughly bi-weekly cadence to plan September regional and leadership meetings and provide input on Phase 1 action items. Phase 2 includes efforts to establish regional task teams that lead the Communities of Practice (CoP) alongside the thematic working groups, and the task team and network leads will support the recruitment of these regional leads.

2. Analyze WGCapD survey results and identify additional leadership and regional community of practice participants.

The secretariat team analyzed results from the WGCapD survey following WGCapD-10 to identify pilot regional meeting participants and facilitators. Further analysis is planned to identify network centers, regional presence, and geographic overlaps between networks. These analyses will help network representatives, the task team, and regional CoP leads identify opportunities for engagement and outreach initiatives that bisect the member networks. Current members and participants in EOTEC DevNet activities have also been encouraged to share networks or contacts that might be interested in participating in the regional communities of practice.

3. Develop Theory of Change and monitoring and evaluation approaches to measure the impact of EOTEC DevNet.

The secretariat and task team undertook an iterative, collaborative approach to the theory of change exercise, and two drafts of varying scope have been reviewed by the task team. A key outcome of this exercise was determining the extent of EOTEC DevNet's engagement beyond the member networks, to the network's various organizations, and eventually, to users. The niche EOTEC DevNet seeks to fill is as a coordinating or communicative body across the member networks, which will engage with network members through the CoPs as outlined in the Theory of Change. This final draft document was approved at the EOTEC DevNet's September 10 leadership meeting and is included in Appendix A.

A method for monitoring and evaluation of EOTEC DevNet's impact will be drafted based on the outputs outlined in the Theory of Change. Implementing these monitoring and evaluation methods will fall into Pilot Phase 2 efforts.

4. Continue to develop the concept of operations, define resource and effort requirements (develop initial BOE and steps so far), and identify support sources for the pilot stage.

Through an iterative and collaborative approach similar to the approach for the Theory of Change, the task team has drafted and reviewed a concept of operations document available [here](#) or in Appendix B.

An initial Basis of Estimate (BOE) is available in Appendix C. The BOE outlines some potential support sources, but further efforts to identify and secure support will be conducted in Pilot Phase 2.

5. Network leads will work within their respective governance structures to gain approvals and confirm support of participation.

Below is the status of approvals or endorsements by the network partners:

CEOS: EOTEC DevNet overview and initiation plan approved at 2021 CEOS SIT Technical Workshop

GEO: Presentation made to GEO Capacity Development Working Group, report submitted to GEO SEC, Programme Board

CGMS: Working paper submitted to CGMS-49 WGIV, initiative endorsed, recommendation made for members to participate in regional communities of practice

UNOOSA: support comes from the director, the following statement received in writing:

"The Office for Outer Space Affairs (UNOOSA) has been active in supporting the Committee on Earth Observation Satellites Working Group on Capacity Development and Data Democracy (WGCapD) and therefore, fully supports on the same basis the establishment of EOTEC DevNet. UNOOSA management is considering ways to engage further."

WMO: An initial endorsement received by email in March (see below), a more formal letter will be sent shortly. "The CEOS initiative EOTEC-DevNet addresses an important gap in the coordination of various capacity building, outreach and training activities across the full value chain from space-based observations to down-stream services and end-users. WMO's long-term goals and strategic objectives embrace a comprehensive earth-system approach, with a vision to ensure sustainable development through the best possible services, whether over land, at sea or in the air. WMO is therefore strengthening its engagement with the satellite data providers to ensure the benefits of the space-based observations are maximized.

To achieve the above goals WMO engages with its Members in the Regional Associations to establish the regional requirements for satellite observations and training. Furthermore the WMO Rolling [Review of Requirements](#) captures the user requirements across all application areas in the WMO Observing Systems Capability Analysis and Review Tool ([OSCAR](#)).

WMO is therefore supportive of this initiative and in a strong position to contribute not only through the establishment of the user requirements and training, but also for the engagement with the national National Hydrological and Meteorological Services as well as other relevant entities e.g. as covered by the WMO Disaster Risk Reduction Programme, the Flash Flood Guidance System and the Education and Training Programmes."

Other: EOTEC DevNet in the US statement and EC presentation to the UN COPUOS STSC

6. Coordination and logistics for initial regional meetings & leadership meeting: confirm dates, develop invitation list, plan agenda, and conduct outreach.

AND

7. Host regional meetings in June 2021 and leadership meeting in September 2021.

The first set of regional exchanges was held on June 14, 2021. 90 individuals contributed to the start-up of four regional Communities of Practice (Asia/Oceania, Africa, the Americas, and Europe) and helped develop a new tracking tool on flood-related capacity building opportunities. The floods tracker, an example of the types of resources EOTEC DevNet plans to produce, captures existing EO flood tools, related capacity building and training opportunities, and outstanding gaps and needs. The slides for the meeting can be found here.

The second set of regional exchanges will be held on September 21, 2021. These meetings will continue the conversation on floods and begin a similar discourse around drought.

The first annual leadership meeting took place on September 10, 2021. The meeting focused on reviewing and approving Phase 1 deliverables, looking ahead to Phase 2 goals, and working collaboratively on how EOTEC DevNet can best gather and assess needs and gaps.

The secretariat and planning team also assembled the Community of Practice Leadership Guidance document, available [here](#) or in Appendix D. Outreach to recruit regional and thematic working group leads is underway and will continue in earnest throughout the beginning of Pilot Phase 2.

- 8. Define the scope of the pilot activity collecting training, education, and capacity development gaps, overlaps, and resources relating to the pilot topic of floods. Gaps include skills gaps in users' abilities to use satellite and other space-based asset data. Training resources include actual training materials and approaches, use cases, and evidence that people are using satellite information successfully.**

During Pilot Phase 2, the EOTEC DevNet task team and secretariat hopes to focus on the collection of education tools related to floods along with gaps and overlaps in capacity development resources. The regional CoPs will help to gather these needs and use cases within the pilot topic focus of floods in their regions.

- 9. Identify ways to collect training, education, and capacity development gaps, overlaps, and resources that inform disaster risk reduction planning, climate adaptation and mitigation planning, and associated vulnerability assessments (conversation about pilot role of nexus rather than DRR focus) that use satellite and other space-based asset data.**

During Phase 1 of the pilot activities, methods for collecting training, education, and capacity development overlaps were primarily focused on the "trackers," or the collaborative spreadsheets that allow members of the networks to share their data, tools, and capacity development resources related to particular themes. These trackers, which currently exist for flood and drought resources, also aim to collect gaps and needs that have been previously identified by the member networks, but serve a secondary function of potentially revealing additional gaps in tools and capacity development resources by surveying the current inventory. However, these trackers do not yet reach the topics of climate adaptation, mitigation, and associated vulnerability assessments or the nexus of these topics, but instead focus on thematic topics within the topic of disaster risk reduction. Additional conversations amongst the regional communities of practice and the global network leadership team will support the next steps to identify gaps, overlaps, and resources related to other thematic areas and educational materials.

- 10. Summarize Phase 1 results to inform respective network planning and the global stocktake.**

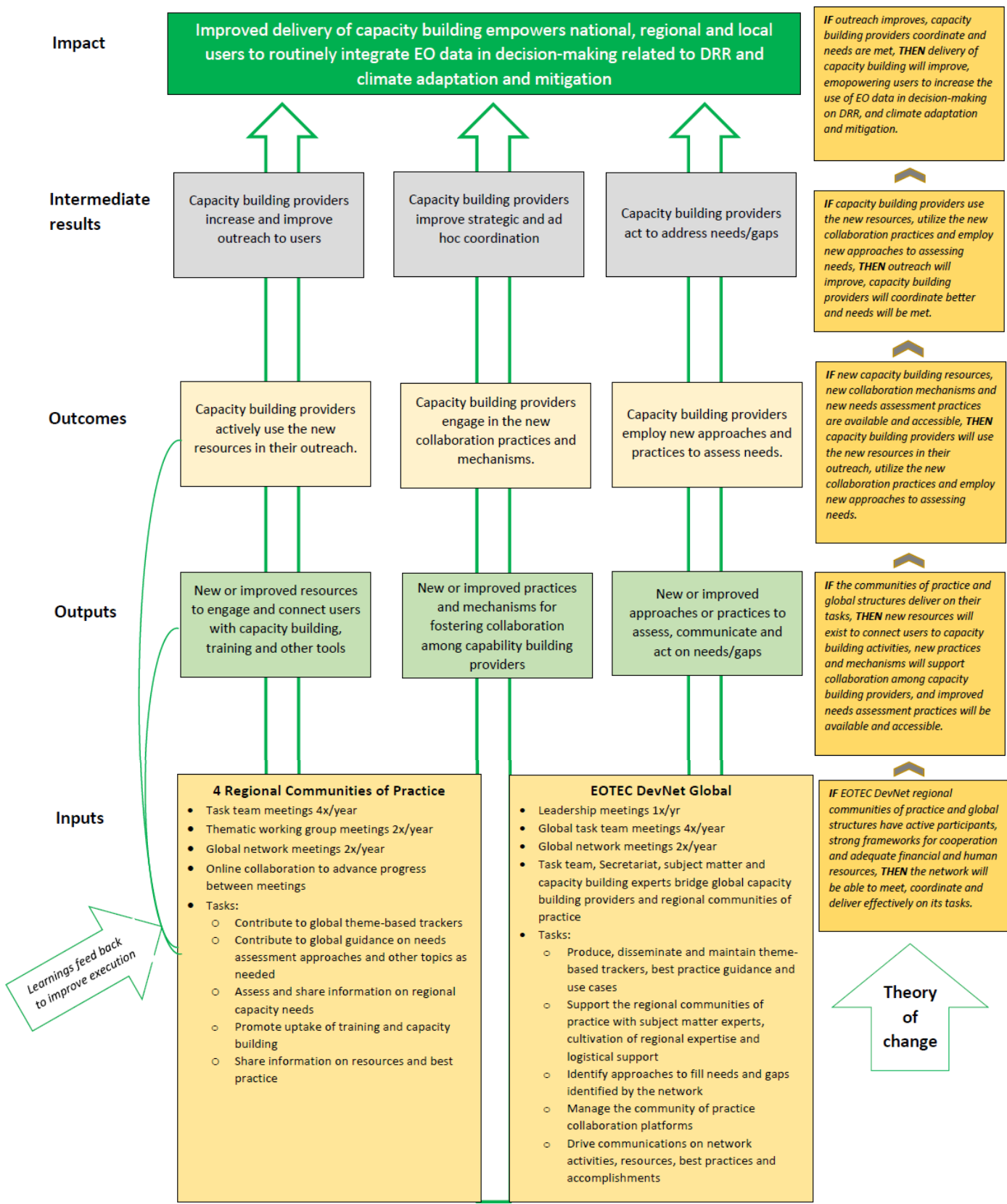
This report represents the summary of Phase 1 results. More detailed information about each of the Phase 1 deliverables can be found in the appendix or can be provided by the secretariat. The action items for Phase 2 are to be recommended at the leadership meeting on September 10.

Appendix A: Theory of Change

EOTEC DevNet must have a mechanism for monitoring its own progress and impact. A theory of change approach has been proposed to support the network's monitoring and evaluation activities. A summary statement, sample indicators and framework follow. These were developed by the Secretariat team and approved by the leadership team at its September 10, 2021 meeting. This theory of change will evolve as EOTEC DevNet grows. The specific indicators and metrics for monitoring and evaluation will be developed in late 2021.

Summary: By creating an inclusive, diverse practitioner community among EO capacity building professionals and subject matter experts, and supporting global and regional actions that enable information exchange and knowledge flows, EOTEC DevNet will enhance collaboration on EO-related capacity building and improve access to capacity building and related resources. In addition, EOTEC DevNet will foster the systematic assessment of capacity development needs, along with identification of gaps and approaches to close them. These actions will result in increased uptake of EO-centered capacity building, improved delivery of activities, and more needs and gaps met. Together, these results will have a positive impact on national, regional and local users' application of EO data in decision-making, particularly around EOTEC DevNet's current focus issues: disaster risk reduction, climate adaptation and climate mitigation.

Examples of possible indicators at various levels		
<i>Output</i>	4 new communities of practice and global structures are created	<ul style="list-style-type: none"> • Number of communities of practice • Number of global structures created
	New or improved resources to engage and connect users with capacity building, training and other tools	<ul style="list-style-type: none"> • Number of trackers, guidance documents and best practices created at regional and global level
	New or improved practices and mechanisms for fostering collaboration among capacity building providers	<ul style="list-style-type: none"> • Communication and coordination channels (e.g., online platform and tools) established • Number of leadership, task team and thematic working group meetings conducted as scheduled
	New or improved approaches or practices to assess, communicate and act on needs/gaps	<ul style="list-style-type: none"> • Best practice guidance on needs assessment developed • Number of regional communities of practice that implement the guidance
<i>Outcome</i>	Capacity building providers actively use the new resources in their outreach.	<ul style="list-style-type: none"> • Number of times providers use the new resources.
	Capacity building providers engage in the new collaboration practices and mechanisms.	<ul style="list-style-type: none"> • Level of participation in regional community of practice and global level meetings and online engagement
	Capacity building providers employ new approaches and practices to assess needs.	<ul style="list-style-type: none"> • Number of providers who use new approaches to needs assessment.
<i>Intermediate results</i>	Capacity building providers increase and improve outreach to users	<ul style="list-style-type: none"> • Number of activities and communications to engage users
	Capacity building providers improve strategic and ad hoc coordination	<ul style="list-style-type: none"> • Number of providers attending meetings • Number of capacity building activities with multiple partners
	Capacity building providers act to address needs/gaps	<ul style="list-style-type: none"> • Number of activities proposed in response to identified needs



- Assumptions**
- Commitments from all EOTEC DevNet partners remain strong.
 - Financial and human resources are available, particularly in staff time to support activities.
 - Regional CoPs successfully launch, strengthen and are able to deliver on their programs.

Appendix B: Concept of Operations

Earth Observation Training, Education, and Capacity Development Network

Operations Concept

Note: This document sets out a structure for the operations of the Earth Observation Training, Education, and Capacity Development Network, or EOTEC DevNet. It builds on the Initiation Plan approved by the CEOS Strategic Implementation Team in March 2021. It is a living document that will be revised as the network grows. Note that “capacity building” and “capacity development” are used interchangeably throughout.

I. Introduction

EOTEC DevNet was created to fill an existing gap in the coordination of capacity building efforts related to the use and application of Earth observations (EO) in solving development challenges and fostering sustainable development. Its goals are to:

- Improve coordination and cooperation among capacity building providers and users to meet existing needs, fill gaps, leverage resources, and reduce any duplication of effort
- Raise awareness and foster information exchange on capacity building resources
- Promote effective assessment of capacity building needs, particularly at regional and national levels

EOTEC DevNet will deliver returns in the form of more efficient use of human and financial resources and more effective and accessible capacity building. A key success factor for EOTEC DevNet is the extent to which it can become a place of information exchange, at which EO data and capacity development/ training providers can find each other and freely exchange information, experience, and learning on EO tools, capacity and training opportunities, and unmet user needs. The current vision is for regional communities of practice to drive and anchor that exchange.

EOTEC DevNet will align its work with that of existing global and regional capacity development networks, building on their initiatives and programs. The aim is to offer coordination and information-sharing, avoiding duplication of effort. Examples of these networks and programs include the GEO regional groups, the UNOOSA regional centers, and the WMO Capacity Development Programme.

EOTEC DevNet recognizes that the active pursuit of diversity and inclusivity is a strategy for fostering greater coordination and cooperation on capacity building. In line with the efforts of its member groups, EOTEC DevNet will take leadership in advocating for diversity and inclusion, creating a welcoming and supportive environment, and prioritizing diversity and inclusion in all outreach and engagement efforts.

A deliverable in the Committee on Earth Observation Satellites (CEOS) 2020-2022 work plan, EOTEC DevNet will begin with a 2-year pilot. During this phase, participants from the individual networks will steer implementation of EOTEC DevNet through a Global Task Team (see box below) and a Secretariat housed at the CEOS Working Group on Capacity Building and Data Democracy (WGCapD).

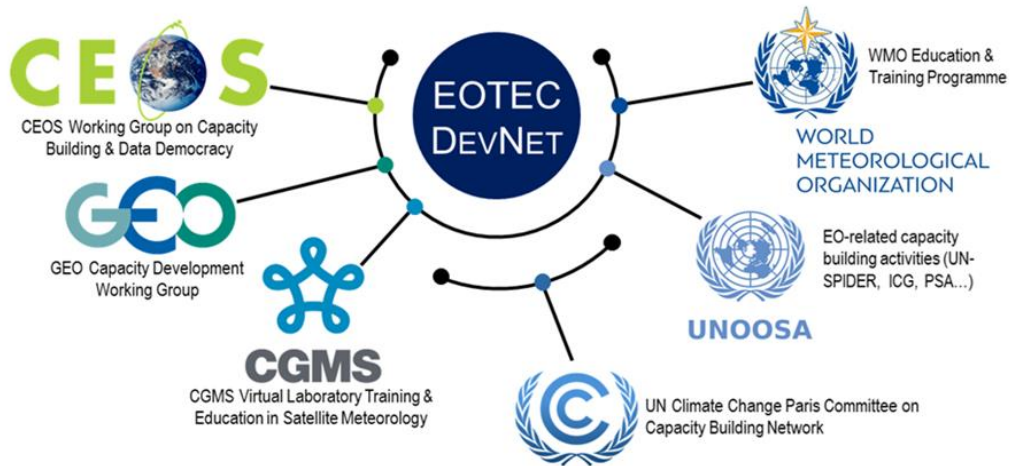
II. EOTEC DevNet Core Business

Drawing on the nexus of three global sustainability frameworks, EOTEC DevNet will focus on increased capacity building and application of EO across these key themes: disaster risk reduction, mitigation of climate change impacts, and adaptation to climate change impacts, with emphasis on human vulnerabilities within each of them.

- The three frameworks are: the 2030 Agenda for Sustainable Development, the Paris Agreement on Climate Change, and the Sendai Framework for Disaster Risk Reduction 2015-2030.

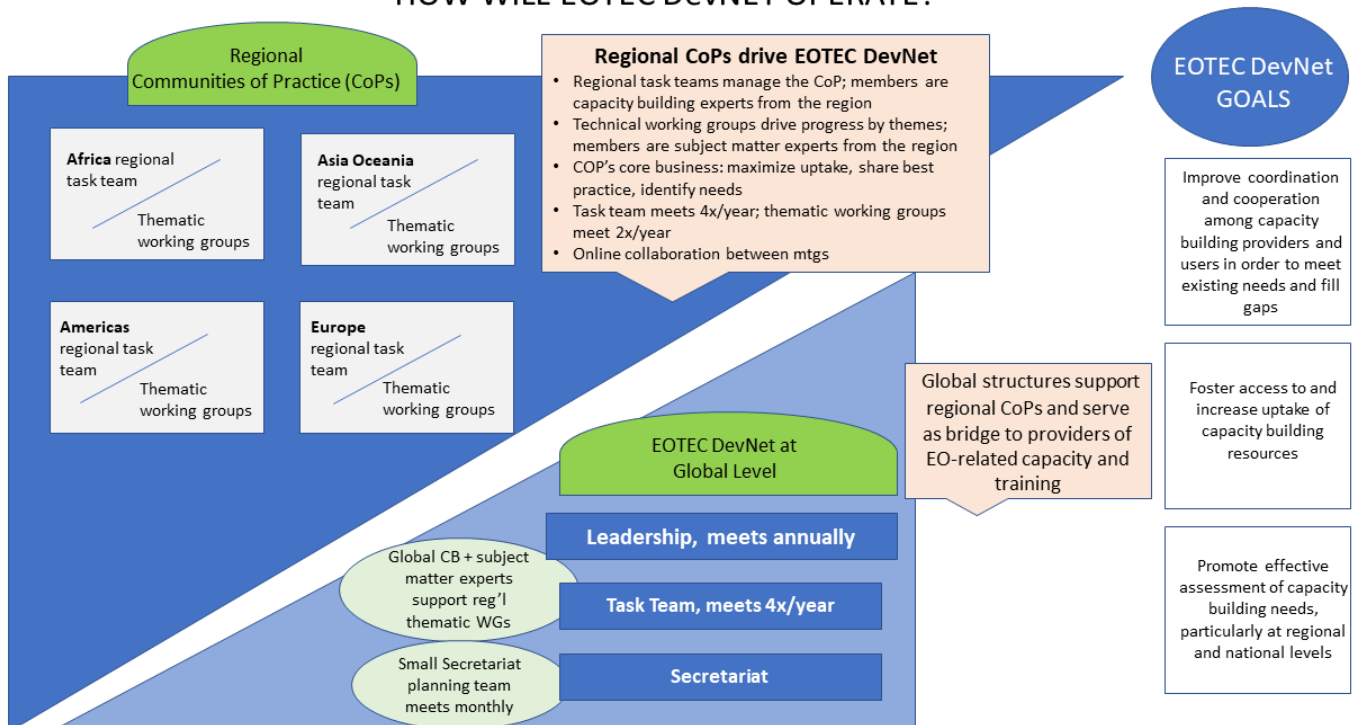
Initial work streams will evolve to meet needs specific to the nexus of the themes. The initial focus is on disaster risk reduction, specifically capacity building related to flooding and drought.

Current Participation in EOTEC DevNet



The inner circle represents the current leadership of EOTEC DevNet: the CEOS Working Group for Capacity Building and Data Democracy (WGCapD), Group on Earth Observations Capacity Development Working Group (GEO CD-WG), the World Meteorological Organization (WMO) and the Coordination Group for Meteorological Satellites Virtual Laboratory for Training and Education in Satellite Meteorology (CGMS VLab), United Nations Office for Outer Space Affairs (UNOOSA), and WMO Education and Training Program (ETR). Representatives of each of these groups will staff the Global Task Team. To broaden its reach, EOTEC DevNet will seek to broaden the network over time to engage others, such as the UN Paris Agreement’s Capacity Building Network. EOTEC DevNet will also seek to align with ongoing geospatial information management action plans such as the United Nations Committee of Experts on Global Geospatial Information Management’s Integrated Geospatial Information Framework (UN GGIM IGIF). A stakeholder mapping activity, anticipated during the pilot phase, will help elucidate these connections.

HOW WILL EOTEC DevNET OPERATE?



Alongside its coordination role, EOTEC DevNet will seek to deliver three types of work products: 1) theme-specific, web-based “trackers” on existing tools, associated capacity development, training resources, and gaps and needs, 2) guidance on capacity development needs assessment methodologies by theme, and 3) use cases showcasing successful methodologies and approaches.

- Web-based tracking tools will be developed for the prioritized thematic areas. These trackers inventory existing EO tools with details on when, how, and where they can be applied; catalogue related training, education, and capacity development resources; and track initial needs and gaps based on regional experience.
- The needs assessment guidance will synthesize and systematize existing practice and recommend additional approaches tailored to identifying theme-specific needs at national and subnational levels.
- The use cases will feature best practices and lessons learned in capacity building in the prioritized thematic areas.

Collaboration with the regional communities of practice will be critical to the success of these efforts.

III. Structure and Meeting Cadence

Regional communities of practice will be primary drivers of EOTEC DevNet’s work.

- Capacity building and subject matter experts from four regions (Africa, Americas, Asia-Oceania, Europe) will lead the communities of practice.
- The work of the community of practice will be guided and managed by a regional task team with a lead or co-leads.
- Thematic working groups will be created to support work on specific technical themes. These working groups may be created and disbanded at the discretion of the task team in line with regional needs.
- The core business of the regional communities of practice will be advancing EO-related capacity building efforts by:
 - Promoting, coordinating, and maximizing uptake of training and capacity building
 - Sharing information on resources and best practices through culturally appropriate and inclusive programs
 - Identifying needs and gaps within themes (currently: disaster risk reduction and mitigation of and adaptation to climate change impacts)

Contributions, refinements, and updating of the trackers and needs assessment guidance will be central tasks.

- The work of the communities of practice will be coordinated with the regional bodies of the larger network members, such as GEO’s regional networks and UNOOSA and WMO regional centers.
- During the pilot phase:
 - Regional task teams comprising capacity building leaders from the region will be created to manage the operations of their respective communities of practice.
 - In addition, regional thematic working groups led by subject matter experts will be created to drive progress under each theme.
 - The regional task team and thematic working groups represent the community of practice.
 - The task teams will meet quarterly to oversee the work of the community of practice. The meetings can be used for information-sharing and priority setting; work planning on trackers and needs assessment documents; and deep dives on relevant thematic technical topics. Leads of the thematic groups should attend these meetings.
 - The thematic working groups will meet twice per year.
 - In between meetings, the community of practice will sustain its work and make progress through online engagement, collaboration, and ad hoc meetings. Activities will center on enhancing, revising, and finalizing the trackers and needs assessment guidance, coordination on capacity building activities relevant to the region, and ongoing identification and communication about gaps at regional or national levels. The online engagement will be conducted via email initially and then move to another online collaboration platform as the community grows.

- The EOTEC DevNet Secretariat will provide initial management support for the communities of practice. The start-up might include: helping organize meetings, recruiting task team and thematic working group leaders, identifying capacity building and subject matter experts, and supporting start-up of the communications and collaborations infrastructure. (Note that EOTEC DevNet already has a dedicated [page](#) on the CEOS website.) The regional task teams, as they grow and strengthen, can assume management.
- During the pilot phase, the Secretariat will also support the creation and consolidation of the thematic working groups in each region. Global capacity building and subject matter experts will work through the Secretariat to provide support as needed to the regional thematic working groups. The Secretariat will also support communication and coordination across regions, as needed. As with the regional task teams, the thematic working groups can assume management as they are able. These groups can determine their own meeting cadence and logistics.

At the global level, annual leadership meetings will include the EOTEC DevNet Task Team and representatives of other capacity development networks.

- Meeting objectives:
 - Recommendations on new strategies and approaches to fill identified gaps in EO capacity development
 - Review of the EOTEC DevNet’s thematic focus areas and recommendations on new opportunities
 - Guidance on approaches to needs assessment in key EO thematic areas
 - Coordination of education, training, and capacity development activities globally and regionally
 - Review of EOTEC DevNet’s progress, including reviews and updates to the tool trackers
- EOTEC DevNet’s leadership meetings will rotate between in-person and virtual meetings. (The first meeting took place virtually on September 10, 2021.)
- Along with the Task Team and EOTEC DevNet Secretariat, other attendees might include the leadership of the other networks, including: the chair and vice chair of WGCapD, VLab co-chairs, GEO CD-WG co-chairs, the WMO ETR manager, and UNOOSA capacity building leadership.

The EOTEC DevNet Global Task Team and Secretariat will provide support to regional communities of practice as needed and act as a bridge between them and the providers of EO-related capacity and training. The task team will:

- Provide overall guidance to ensure that the regional communities of practice are launched with clear, results-oriented objectives and operations.
- Center its work on: identifying providers to fill needs and gaps, building the regional networks, cultivating and onboarding capacity development and technical experts at regional level, overseeing meeting planning, helping to manage the community of practice collaboration platforms, and driving communications on network activities and accomplishments.
- Facilitate the production of case studies highlighting successful approaches and methodologies.
- Meet every two months during the pilot phase. As EOTEC DevNet matures, it may meet less frequently.

The Secretariat will operate under the direction of the Global Task Team and help fulfill its work plan. A smaller team, comprising Secretariat participants and any other volunteers, will meet monthly to manage logistics and planning of the meetings.

IV. Initiation

As part of the pilot, WGCapD will provide part-time Secretariat support to all four regional communities of practice.

As they are able, EOTEC DevNet network participants should contribute a part-time staff person to support management of the community of practice. The University of Jena anticipates contributing a staff person starting in 2022.

The first set of regional meetings took place June 14, 2021. A second set of virtual meetings took place September 21, 2021. Work is underway currently on trackers for flood management and drought management.

A leadership meeting took place on September 10, 2021. Participants approved the operational concept and theory of change, affirming these as living documents that will evolve as EOTEC DevNet grows.

The global task team will support a stakeholder mapping activity in 2021/22 to explore existing and potential capacity building networks and highlight opportunities for EOTEC DevNet to maximize coordination, collaboration, and information exchange.

V. Sustainability and Anticipated Resources

The Task Team and regional leaders will coordinate in developing institutional partnerships at regional and national level to help sustain and strengthen the regional communities of practice.

A key Task Team objective during the pilot will be a sustainability plan that identifies ongoing resource requirements, sustainable resource streams, and a mechanism for managing the funding. This plan would include a budget addressing financial resources for meetings and communications infrastructure and in-kind contributions of staff time to support the Secretariat and regional communities of practice.

Viable resource and funding options might include:

- Connections to World Bank and regional development bank budgets that would capture the value of EOTEC DevNet's work in activities to support disaster risk reduction, and climate mitigation and adaptation in the context of the Sustainable Development Goals.
- EOTEC DevNet member contributions, both cash and in-kind, to fund the budget. UNOOSA may be able to collect and manage those contributions through existing mechanisms.

Earth Observation Training, Education, and Capacity Development Network

Basis of Estimate

Summary

This draft basis of estimate attempts to capture the scope of activities and effort support required to operate EOTEC DevNet during pilot phase, October 2021 – March 2023. During the period, additional steps must be taken to ensure the sustainability of EOTEC DevNet beyond this pilot phase (after March 2023).

Key Tasks

Regional support

- Support the establishment and effective functioning of four regional Communities of Practice (CoPs), including:
 - Organizing and facilitating at least quarterly meetings
 - Identification, implementation, launch and ongoing support for the CoPs' communications infrastructure
 - Regular coordination meetings and ad hoc guidance to CoP leadership
- Support the establishment and effective functioning of regional thematic working groups (TWGs) led by subject matter experts to drive progress within each theme, including:
 - Supporting working group formation and infrastructure
 - Identifying opportunities for collaboration across regions
 - Organizing and facilitating at least twice-yearly meetings

Global support

- Coordinate across the global EOTEC DevNet secretariat, leadership and technical experts, including:
 - Hold regular coordination meetings and provide ad hoc guidance to leadership and secretariat
 - Organize and facilitate virtual and in-person meetings
 - Complete necessary reporting and documentation, including periodic surveys of key target audiences
- Coordinate the creation and maintenance of work products, including trackers, needs assessment guidance, and use cases, with the Regional CoPs, TWGs, and CEOS Systems Engineering Office (SEO)
- Provide collaboration software and communicative mechanisms to support the technical and collaborative needs of all working groups (secretariat, leadership, task teams, CoPs, and TWGs)
- Complete remaining Pilot Phase 1 and Phase 2 deliverables, as enumerated below:

Pilot Phase 1 (March 2021 – November 2021)

1. Develop monitoring and evaluation approaches to measure the impact of EOTEC DevNet
2. Define the scope of the pilot activity collecting training, education, and capacity development gaps, overlaps, and resources relating to the pilot topics
 - a. Gaps include skills gaps in users' abilities to use satellite and other space-based asset data
 - b. Training resources include actual training materials and approaches, use cases, and evidence that people are using satellite information successfully
3. Identify ways to collect training, education, and capacity development gaps, overlaps, and resources that inform disaster risk reduction planning, climate adaptation and mitigation planning, and associated vulnerability assessments that use satellite and other space-based asset data

Pilot Phase 2 (November 2021 – March 2023)

1. Implement approaches to collect training, education, and capacity development gaps, overlaps, and resources that inform disaster risk reduction planning, climate adaptation and mitigation planning, and associated vulnerability assessments.
2. Develop plans to address gaps using existing resources and/or by identifying network partners who can develop new ones.

3. Identify and track relevant metrics to determine the value of continuing EOTEC DevNet beyond a 2-year pilot phase.
4. Create a sustainability plan to ensure the initiative can continue to grow beyond the pilot phase if evaluation deems it to be successful.
5. Summarize Phase 2 results and report to the network partner leadership to inform the future of EOTEC DevNet.

Basis of Estimate

Tasks	Personnel	Estimated LOE (hrs/qtr)
October – December 2021		
Recruitment, outreach, and establishment of CoPs		43
Recruitment, outreach, and establishment of TWGs		43
Identify communications infrastructure		22
Plan stakeholder mapping effort		22
Elaborate monitoring and evaluation plan, including tracking relevant metrics to determine continuation beyond pilot phase		22
Work product development and revisions		22
Global task team meeting: December		22
Regional Meetings: December (TBD)		43
	Subtotal (hrs)	237
	Cumulative total (hrs)	237
January – March 2022		
Recruitment, outreach, and establishment of CoPs		43
Recruitment, outreach, and establishment of TWGs		43
Implement communications infrastructure		22
Implement stakeholder mapping		22
Identify ways to collect training, education, and capacity development gaps, overlaps, and resources		26
Ongoing monitoring and evaluation		22
Work product development and revisions		22
Global task team meeting: March		22
Regional meetings: March		43
	Subtotal (hrs)	262
	Cumulative total (hrs)	499
April - June 2022		
Expand outreach based on stakeholder mapping		13
Continue to identify ways to collect training, education, and capacity development gaps, overlaps, and resources		13
Ongoing monitoring and evaluation		22
Work product development and revisions		22
Global task team meeting: June		22
Regional meetings: June		43
Ongoing support of regional CoPs and TWGs and global structures		65

	Subtotal (hrs)	198
	Cumulative total (hrs)	697
July – September 2022		
Implement approaches to collect training, education, and capacity development gaps, overlaps, and resources		13
Ongoing monitoring and evaluation		22
Work product development and revisions		22
Global task team meeting: August		22
Regional meetings: September		43
Ongoing support of regional CoPs and TWGs and global structures		65
Organize and facilitate annual leadership meeting		43
	Subtotal (hrs)	228
	Cumulative total (hrs)	925
October - December 2022		
Ongoing monitoring and evaluation, including evaluation of pilot phase impact and viability of continuing the network		30
Work product development and revisions		22
Global task team meeting: December		43
Regional meetings: December		43
Ongoing support of regional CoPs and TWGs		65
	Subtotal (hrs)	202
	Cumulative total (hrs)	1127
January – March 2023		
Create a sustainability plan for EOTEC DevNet beyond pilot phase		22
Ongoing support of regional CoPs and TWGs		65
Monitoring and evaluation including reporting on pilot phase outcomes		13
Work product development and revisions		22
Regional meetings: March		43
	Subtotal (hrs)	163
	Cumulative total (hrs)	1290
TOTAL ESTIMATED COST		1290

Assumptions and Considerations

1. The LOE takes into account the effort required for Pilot Phase 1 (March – November 2021) but envisions a greater amount of time to accommodate significant tasks related to the establishment of the communities of practice and global structures. In addition, LOE is required for stakeholder mapping, monitoring and evaluation, and other activities to ensure EOTEC DevNet starts up effectively. .
 - a. The Pilot Phase 1 LOE is about 25% time across three secretariat team members, which is ~129 hrs/quarter, or 30 hrs/week, Phase 2 will be roughly double that amount of effort, distributed over three secretariat team members and colleagues from the University of Jena who will be contributing part-time support.
2. LOE is calculated on a quarterly cycle based on weekly anticipated effort * 4.3 (the average # of weeks per month), then rounded to the nearest hour, as shown in the abridged table below and in [this spreadsheet](#).

Tasks	Personnel	Estimated hrs/wk	Estimated LOE (hrs/qtr) (*4.3)	Rounded LOE (hrs/qtr)
October – December 2021				
Recruitment, outreach, and establishment of CoPs		10	43	43
Recruitment, outreach, and establishment of TWGs		10	43	43
Identify communications infrastructure		5	21.5	22
Plan stakeholder mapping effort		5	21.5	22
Elaborate monitoring and evaluation plan, including tracking relevant metrics to determine continuation beyond pilot phase		5	21.5	22
Work product development and revisions		5	21.5	22
Global task team meeting: December		5	21.5	22
Regional Meetings: December (TBD)		10	43	43
Subtotal (hrs)		55	236.5	237
Cumulative total (hrs)		55	236.5	237

3. This BOE does not account for additional travel costs of in-person meetings or any single or recurring charges for collaboration software or materials.
4. This estimate assumes that the leadership from each network will support EOTEC DevNet with about 20 hrs/quarter, including participating in meetings, sharing communications, and providing input on operations.
 - a. The leadership team is here defined as the chair and vice chair of WGCapD, VLab co-chairs, GEO CD-WG co-chairs, the WMO ETR manager, and UNOOSA capacity building activity leadership, but may also include the task team, regional CoP and TWG leads, and members of boundary organizations such as UNFCCC.

Outside of secretariat support at NASA via WGCapD, other funding opportunities that have been recognized throughout this process include support from UNOOSA, University of Jena, and the potential to seek outside support of development banks such as the World Bank.

Appendix D: Community of Practice Leadership Guidance

Earth Observation Training, Education, and Capacity Development Network *Communities of Practice* **Regional Lead Guidance**

The regional communities of practice (CoPs), the key drivers of EOTEC DevNet’s work, will be managed by a regional task team steered by a lead or co-leads. The CoPs will also support regional thematic working groups focused on capacity building within specific themes, such as flooding and drought.

The regional leads are capacity development experts from the region who are passionate about connecting subject matter experts, training professionals, and data providers to identify resources and needs within the region.

The role of regional lead is a best-efforts position. The term length is dependent on the needs of the region and the resources available to the regional lead. Ideally, this term would be 2 years.

Responsibilities of the regional leads, to be accomplished with the regional task team, may include:

- Help launch and support thematic working groups, including identifying thematic working group leads and members and assisting them in developing a work plan. Sustain work of the thematic working groups via online engagement, collaboration, and ad hoc meetings.
- Garner active membership in the regional task team and help coordinate periodic meetings. These could take place quarterly or every two months, at the discretion of the lead(s).
- Contribute to EOTEC DevNet global work products. These work products currently include:
 - Theme-specific “trackers” on existing tools, associated capacity development and training resources, and gaps and needs
 - Guidance on capacity development needs assessment methodologies by theme
 - Use cases showcasing successful methodologies and approaches tool
- Communicate capacity development gaps at regional or national levels.
- Identify new topics for thematic working groups, as needed. As regional COPs strengthen and develop needs assessment capacity, they may continue to align with EOTEC DevNet global themes, select their own initiatives, and/or intersect with themes identified by other regions.
- Help coordinate twice-yearly regional meetings where thematic working groups within the region can report on progress, exchange information, plan future work, share needs assessments, and conduct deeper investigation into relevant thematic areas.
- Participate in annual EOTEC DevNet meetings at the global level, report on regional progress.

Ideal qualifications for a regional lead include:

- Knowledge of EO training, education, and capacity development within the region.
- Strong connections to other EO professionals, including subject matter experts, researchers, data providers, and educators in the region.
- Interest and passion for supporting and growing this pilot.
- Strong leadership and organizational skills in contributing to meeting planning, supporting efforts between meetings, and facilitating communication.
- Ideally, the regional leads will be affiliated with one of the networks in the EOTEC DevNet leadership team (WMO, VLab, CGMS, UNOOSA, GEO CD-WG, and CEOS WGCapD).

During the pilot phase (2021-2023), the EOTEC DevNet Secretariat will provide initial management support for the CoPs. This might include organizing meetings, identifying thematic working group leads, and supporting start-up of the communications infrastructure. As the regional CoPs grow and strengthen, regional leads and thematic working group leads can assume management.

Thank you for your commitment to EO capacity development and community exchange!

Earth Observation Training, Education, and Capacity Development Network

Communities of Practice

Thematic Working Group Lead Guidance

The regional communities of practices (CoPs), the primary drivers of EOTEC DevNet's work, will be steered by regional leads and a task team and supported by thematic working groups. The thematic working groups identify and coordinate work within specific topics; currently: disaster risk reduction, climate adaptation, and climate mitigation. As the regional CoPs strengthen and develop experience, they may continue to align with global EOTEC DevNet initiatives, identify their own themes, and/or intersect with work in other regions.

The role of thematic working group lead is a best-efforts position, and term length is dependent on the needs of the region and the resources available to the lead. Ideally, this would be at least 1 year. Responsibilities accepted by the thematic working group leads may include:

- Contribute to EOTEC DevNet global products, including its theme-specific trackers, guidance documents and use cases.
- Sustain work within their thematic working group with online engagement, collaboration, and ad hoc meetings.
- Coordinate communication and meeting cadence within thematic working groups.
- Organize a group report-out at twice-yearly regional meetings where thematic working groups within the region can share progress, plan future work, discuss needs assessments, and conduct deeper investigation into relevant thematic areas.
- Identify opportunities for thematic collaboration across regions.
- Collaborate with the regional task team and leads in fostering institutional partnerships at regional and country level to help sustain and strengthen the regional community of practice.

Ideal qualifications for thematic working group leads include:

- Knowledge of resources, data, tools, and training resources in particular subject matter areas.
- Strong connections to other subject matter experts, researchers, and data providers within the thematic area.
- Interest and passion in supporting and growing this pilot; able to support collaboration between meetings, gather and respond to needs in the thematic area, and develop useful products and partnerships in the thematic area.

We are currently seeking thematic working group leads in the following regions/topics:

Africa, Americas, Asia/Oceania, and Europe:

- *Floods*
- *Drought*

During the pilot phase, the EOTEC DevNet Secretariat will provide initial management support for the CoPs, including the thematic working groups. This might include organizing meetings, identifying thematic working group leads, providing additional subject matter expertise, and supporting start-up of the communications infrastructure. The thematic working groups, as they grow and strengthen, can assume self-management. Ideally, this transition will occur before March 2023.

Thank you for your commitment to EO capacity development and community exchange!