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MOODLE COURSE PRESENTATION ON CREATING TOOLS FOR CAPACITY BUILDING ON THE GENERATION OF WEATHER-BASED CROP CALENDARS TO SUPPORT CLIMATE SERVICES: FROM RESEARCH TO TEACH

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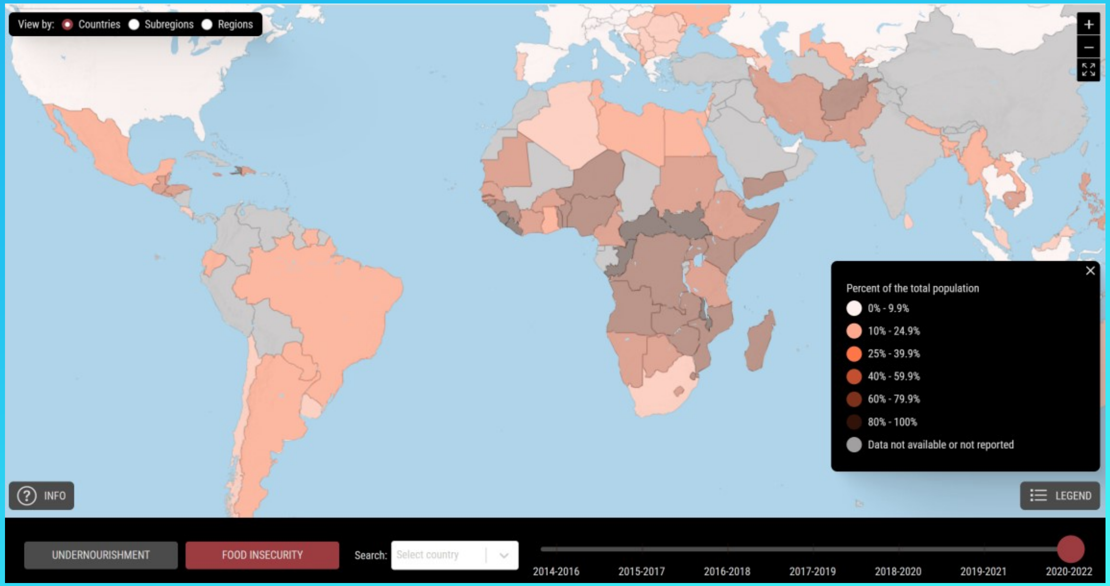
Context

1. Background and Contextualization
2. Competency development, performace criteria and learning outcomes
3. The Research
4. The Teach
5. The moodle course
6. Next steps

1. Background and Contextualization

- The UN's 2030 Sustainable Development Agenda sets a crucial target: eradicating hunger. Yet, progress has been insufficient.
- Over 735 million people still suffer from hunger (FAO, 2023).
- Hunger is not evenly distributed globally; it hits hardest in less developed nations where agriculture sustains many livelihoods.



1. Background and Contextualization

- The CREWS (Climate Risk and Early Warning Systems) Initiative
    - It is **an international effort to improve developing countries' capacity,** particularly the most vulnerable, **to anticipate and respond to climate risks** and natural disasters by implementing effective early warning systems.
    - **CREWS focuses on strengthening multi-hazard early warning systems,** including monitoring, forecasting, and communicating threats like floods, droughts, storms, and heatwaves among others.

1. Background and Contextualization

- The ENANDES (Enhancing Adaptive Capacity of Andean Communities through Climate Services) project
  - is an initiative designed to strengthen the adaptive capacity of Andean communities in the face of climate variability and climate change through the development and improvement of climate services in the Andean region

ENANDES

1. Background and Contextualization

- During last years our colleagues participate in a previous experiences as researchers, trainers and evaluators (in projects such as Climandes I, Climandes II or CREWS initiative projects in Africa.
- In 2022 IURESCAT/C3/URV team participated on trainings for ENANDES project in Bogotá, Lima and Santiago de Chile
    - The objectives were:
        - Quality Control of data
        - Homogeneization
        - Co-creación de indicadores nuevop

1. Background and Contextualization

- Hace un año empieza un nuevo Proyecto con el objetivo de mejorar las herramientas de control de Calidad y calendar crops que se habian desarrollado; testarlar y hacer un curso de moodle para que gente random lo pueda usar.

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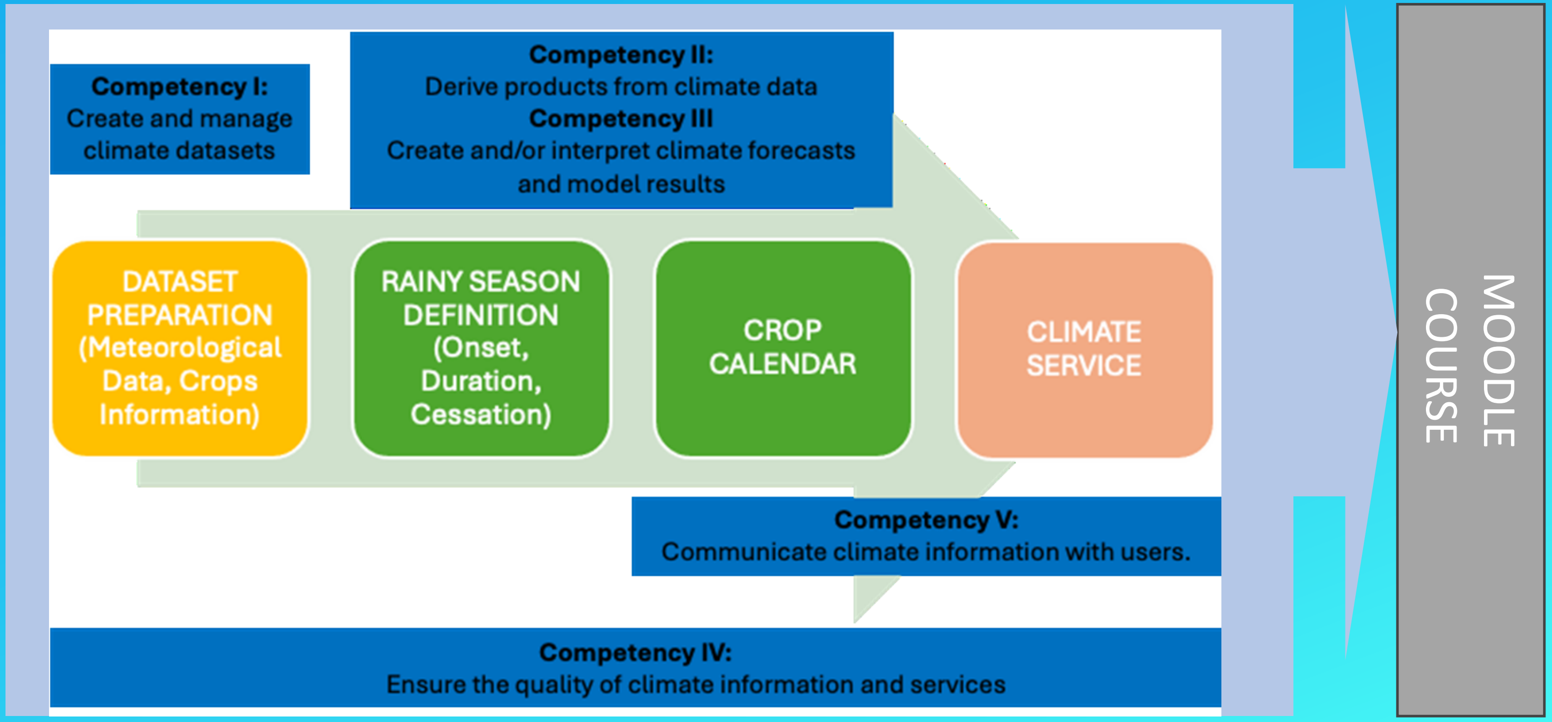
From reseach to teach

- From Data to Service: as stated in the competences defined by the WMO of Climate Services provision



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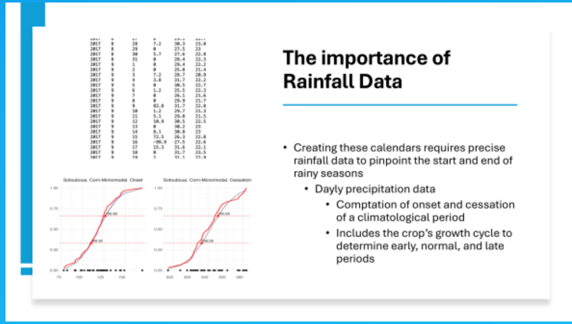
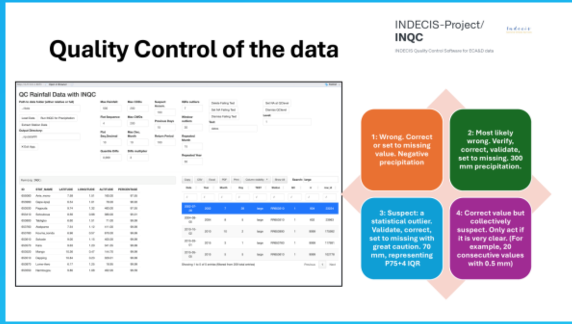
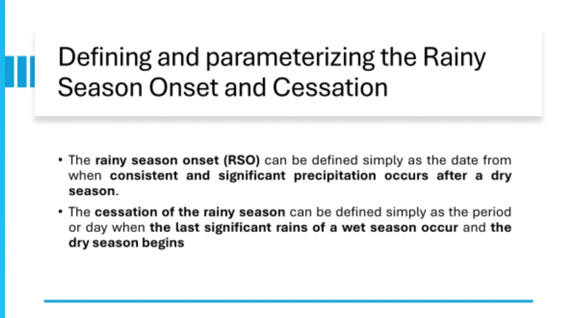
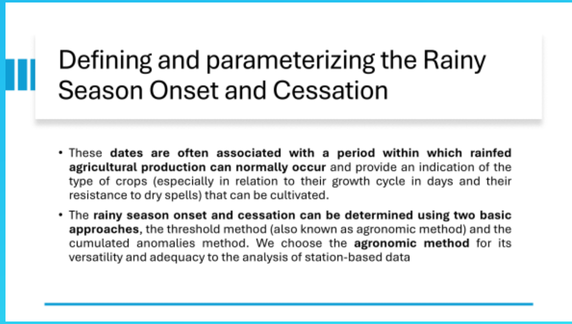
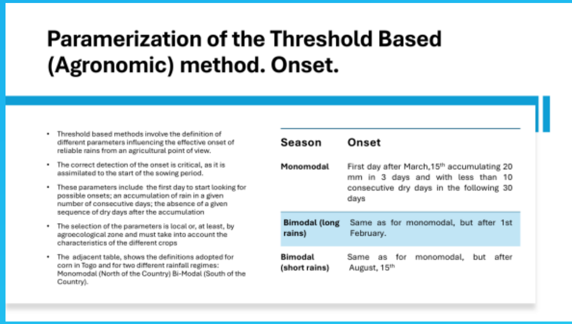
2. Developing Climate Service

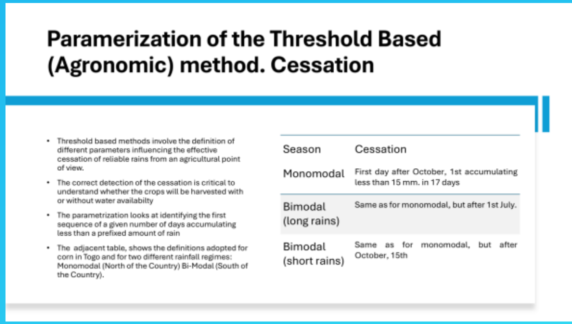


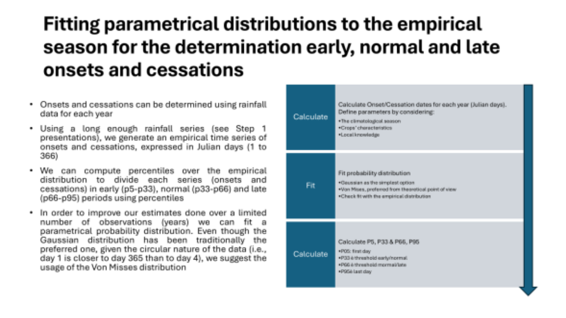


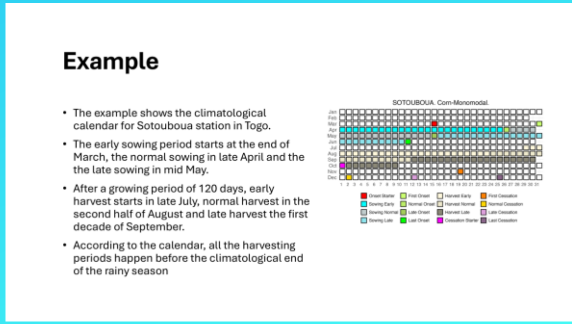












3. Tranforming a research and transference information

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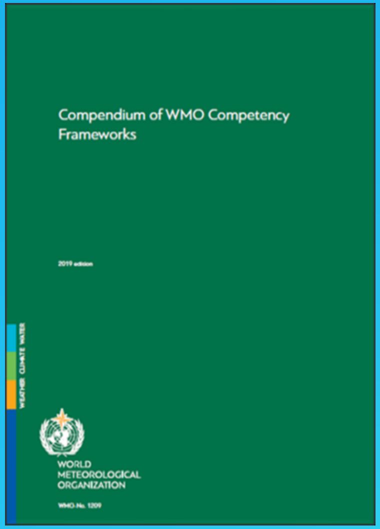
3. Competencys, performace criteria and LO

- The course is based on developing basic activities to achiveve learning outcomes in the main competencies to provide climate services



C1. Dataset Management

C2. Derive Climate Products

C3. Forecasts and Projections

C4. Quality Management

C5. Communication

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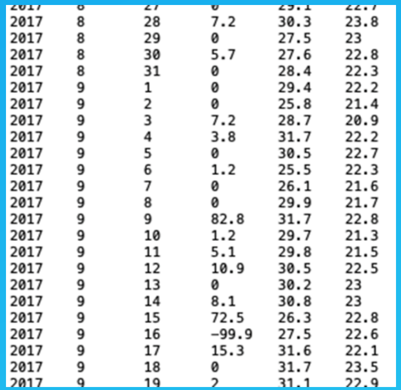
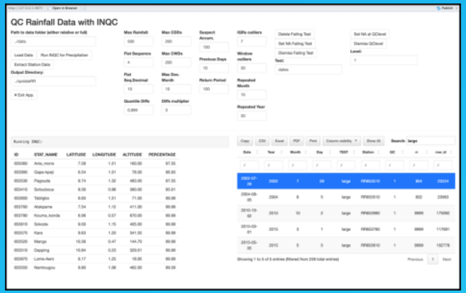
3.2. Competency 1: Create and manage climate datasets

- PC1.1: Conduct climate data preservation and rescue procedure
- PC1.3: Collect and store climate data and metadata in relational databases
- PC1.4: Apply QC control processes to climate data an resulting time series
- PC1.6: Create, archive and document climate datasets



2017	8	27	0	29.1	22.7
2017	8	28	7.2	30.3	23.8
2017	8	29	0	27.5	23
2017	8	30	5.7	27.6	22.8
2017	8	31	0	28.4	22.3
2017	9	1	0	29.4	22.2
2017	9	2	0	25.8	21.4
2017	9	3	7.2	28.7	20.9
2017	9	4	3.8	31.7	22.2
2017	9	5	0	30.5	22.7
2017	9	6	1.2	25.5	22.3
2017	9	7	0	26.1	21.6
2017	9	8	0	29.9	21.7
2017	9	9	82.8	31.7	22.8
2017	9	10	1.2	29.7	21.3
2017	9	11	5.1	29.8	21.5
2017	9	12	10.9	30.5	22.5
2017	9	13	0	30.2	23
2017	9	14	8.1	30.8	23
2017	9	15	72.5	26.3	22.8
2017	9	16	-99.9	27.5	22.6
2017	9	17	15.3	31.6	22.1
2017	9	18	0	31.7	23.5
2017	9	19	2	31.1	22.9



- **LO1.1: Explain the workflow of climate dataset creation and management**, including the successive application of data rescue, quality control, homogenization and integration into a climate database management system
- **LO1.2:Describe the geographical characteristics of the area of study** and the historical events that might affect the climate observing network, including political events, evolution of observing policies and instrumentation changes
- **LO1.4: Characterize the climate of the area of study** and describe its variability and recent changes
- **LO1.6: Demonstrate computer literacy and the ability to use and adapt commercial and specifically designed software** (…)
- **LO1.12: Explain the concepts of climate time series quality and homogeneity** and the causes of quality problems and inhomogeneities
- **LO1.15: Apply quality control and homogenization techniques and evaluate the quality and homogeneity of a climate data network after gathering documentary, statistical and graphical evidences**

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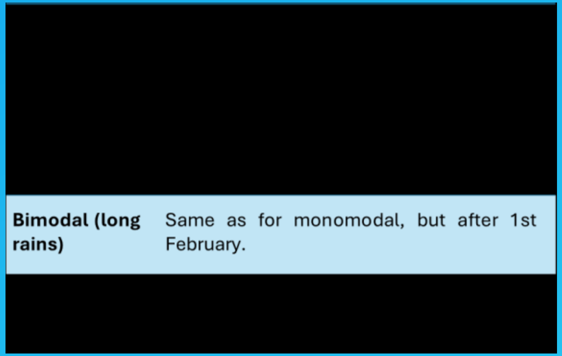
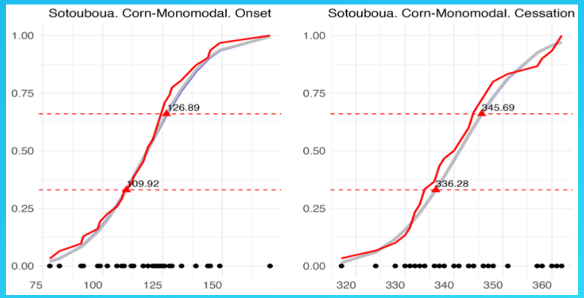
3.3. Competency 2: Derive Products from climate data

- PC2.1: Identify and retrieve climate data from different sources to generate climate products
- PC2.3: Compute basic climate products, normals and averages, or anomalies defined in relation to a reference period
- PC2.4: Compute sector-specific climate indices and other sector-oriented climate products
- PC2.6: Create value-added products, such as graphics, maps and reports to explain climate characteristics and evolution, according to the needs of specific sectors such as health, agriculture, water, energy and disaster management



Bimodal (long rains)	Same as for monomodal, but after 1st February.



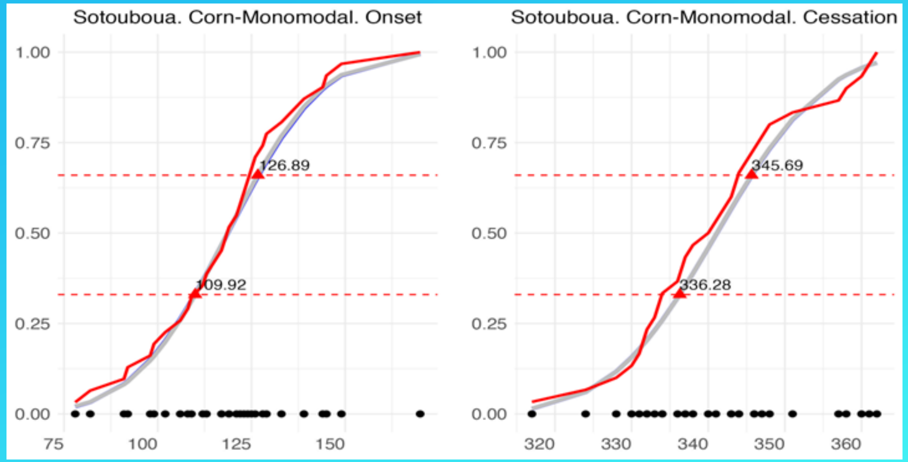
- **LO1.1: Characterize the climate of the area of study and describe its variability and recent changes**
- **LO1.3: Define the impact of climate on strategic sectors, especially GFCS key sectors: agriculture**
- **and food security, disaster risk reduction, energy, health and water**
- **LO1.7: Retrieve sectorial data from original sources inside and outside the organization, and**
- **organize, store and document them**
- **LO1.6: Prepare climate and sectorial datasets for own usage, considering the necessary spatial and temporal coverage**
- **LO1.9: Represent climate data and climate indices time series and test them for temporal changes,**
- **including significance analysis**
- **LO1.12: Explain the meaning and applications of widely used climate indices, such as those included in the RClimdex and Climpact packages**

3.4. Competency 3: Forecast and projections

- PC3.2: Create sub-seasonal, seasonal and longer scale forecast products;
- PC2.3: Create future climate projections using climate models over selected domain for different scenarios and parametrization;
- PC3.6: Create value-added products, such as graphics, maps and reports to communicate climate forecasts and climate model information management

- **LO3.7: Create sub-seasonal, seasonal and longer-scale forecasts including measure of uncertainty tailored to specific user needs**

- **LO3.16: Create products from models relevant to end user needs such as climate means, indices specific to each sector, box plots, drought analysis, climate trends and climate extremes**



3.5. Competency 4: ENSURE THE QUALITY OF CLIMATE INFORMATION AND SERVICES

- PC4.4: Provide training to personnel so that they can fulfil their job requirements and expand their capabilities
- PC4.5: Conduct refresher courses at regular intervals to update knowledge;
- PC4.6: Define and implement a catalogue of climate datasets, products and services to meet user
- requirements at the national and regional level

- **LO4.6: Identify stakeholder needs and characteristics**

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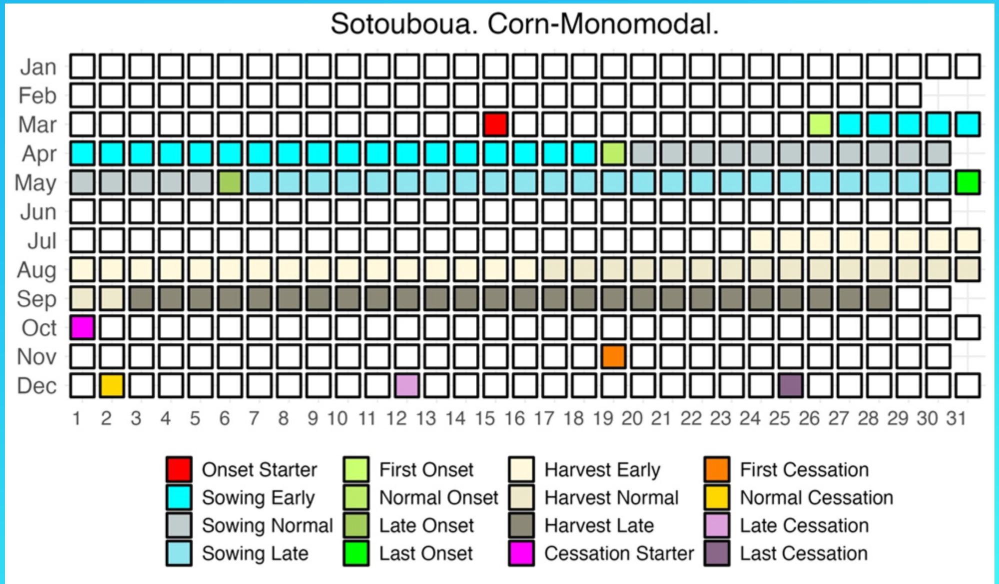
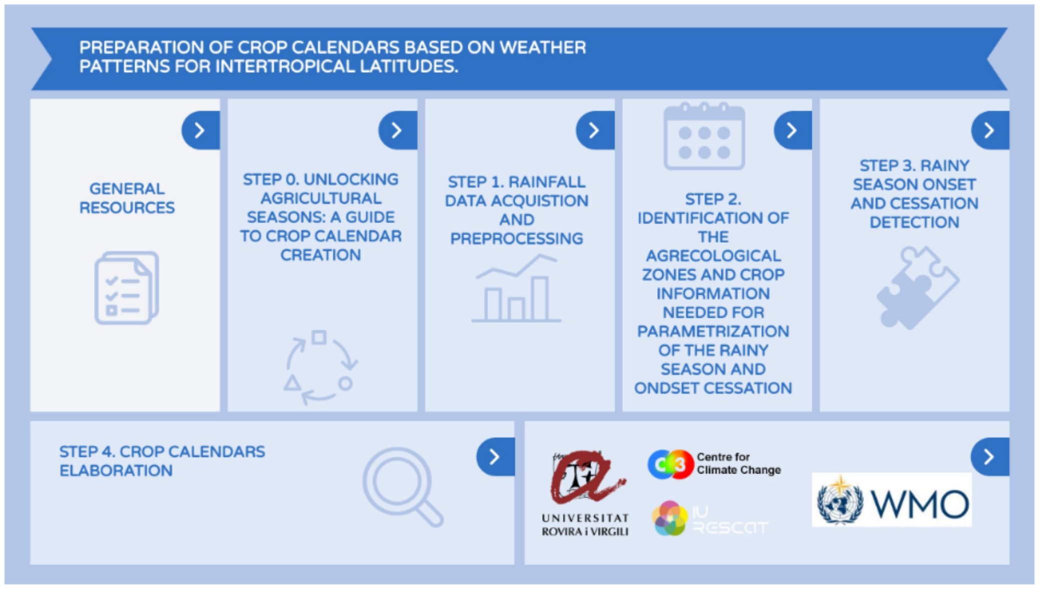
3.6. Competency 5: Communicate climate information to users

- PC5.1: Prioritize the communication of climatological information according to social, political and economic relevance
- PC5.2: Establish effective communication channels with users of climate services and build outreach capacities, such as Regional Climate Outlook Forums ;
- PC5,5: Develop and deliver, in partnership with users, specific applications to facilitate understanding and use of climate products and services

- **LO5.2 Characterize the climate of the area of study and describe its variability and recent changes**
- **LO5.4. Express the impact of climate on the different sectors of economic activity, and on social and geopolitical key issues in the area of study and give examples**
- **LO5.9 Formulate climatological information in a language that is both scientifically sound and adapted to the foreseen users**



Course structure (Draft)



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