COM-CCF Uses Cases (list definition)

Atmosphere Calibration

R. de los Reyes on behalf of the CCF board

Introduction

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- Role of UCs:
  - Use Cases: enable a **communication channel** between stakeholders and all involved parties that build CTA.
  - Use Case: describes the **interaction** between an actor and a system (System Under Discussion) , where the SUD is treated as a black box.
  - All Ucs will be uploaded and assessed in **Jama**, where they can be linked to all related requirements.
- Steps to write them:
  - **List** of UCs with a title/purpose/SUD structured in a coherent way.
  - Writing UCs, starting with the scope and followed by main success scenario and exception paths.
  - UCs are best written by a **small group** of people.
  - Depending on the level, PO would have to accept the UCs.
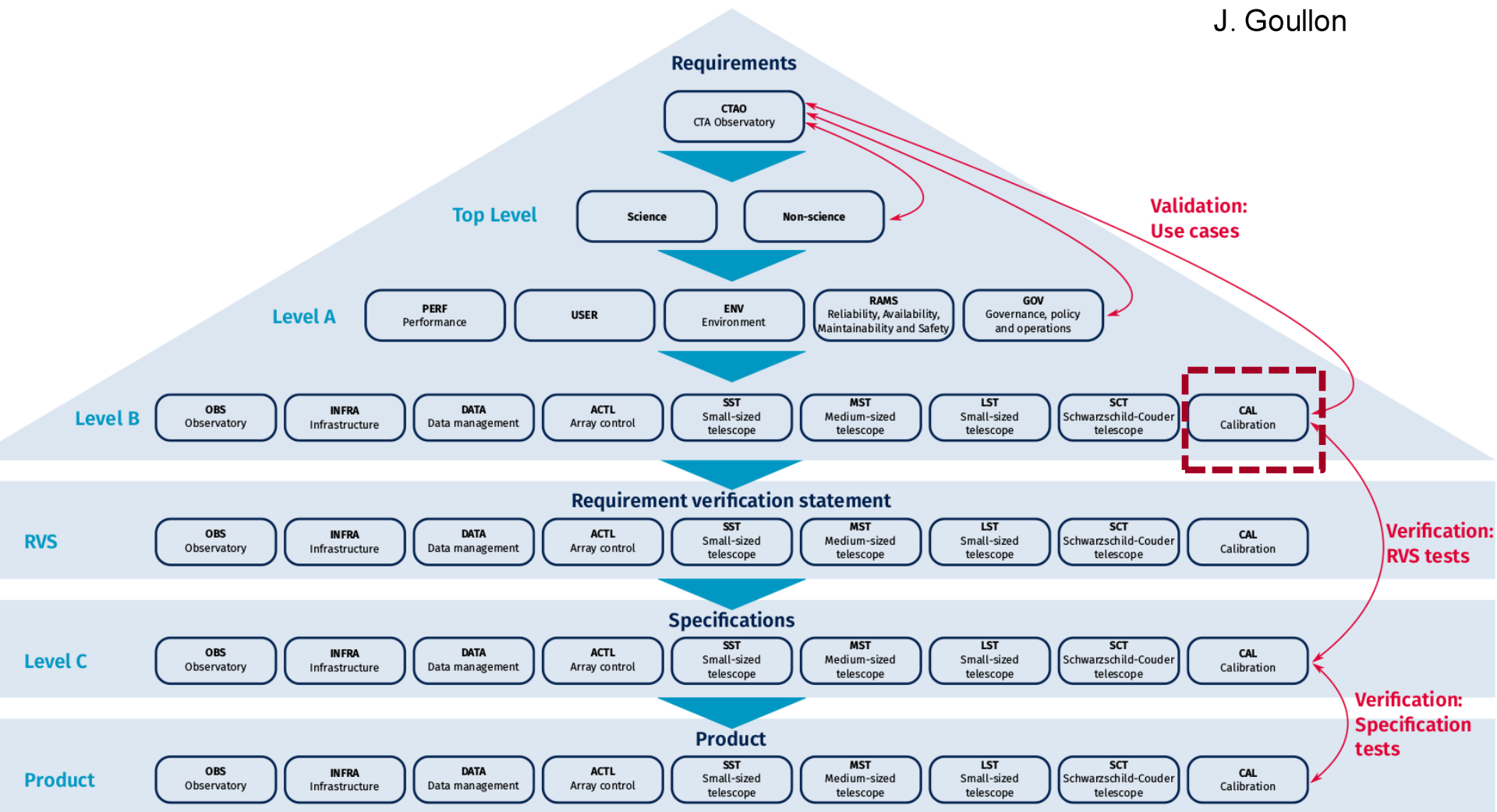
Introduction

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Figure 1.1 – Validation and verification processes within CTA.

Introduction

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Top Level — - Science-related / - Observatory-related

Product level — ACTL, xST, COM, etc.

Sub-product level — Drive control, Camera control, etc.
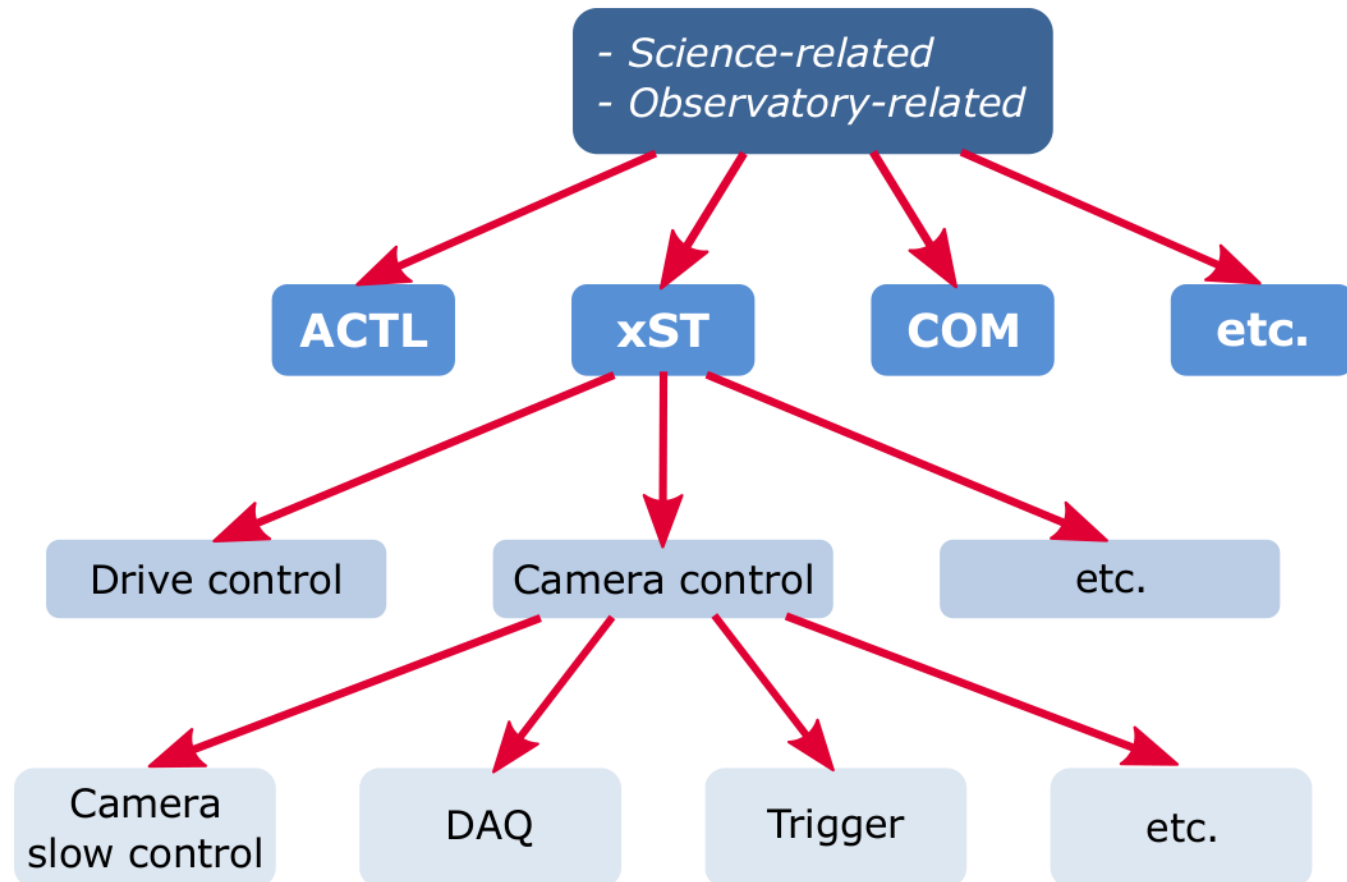
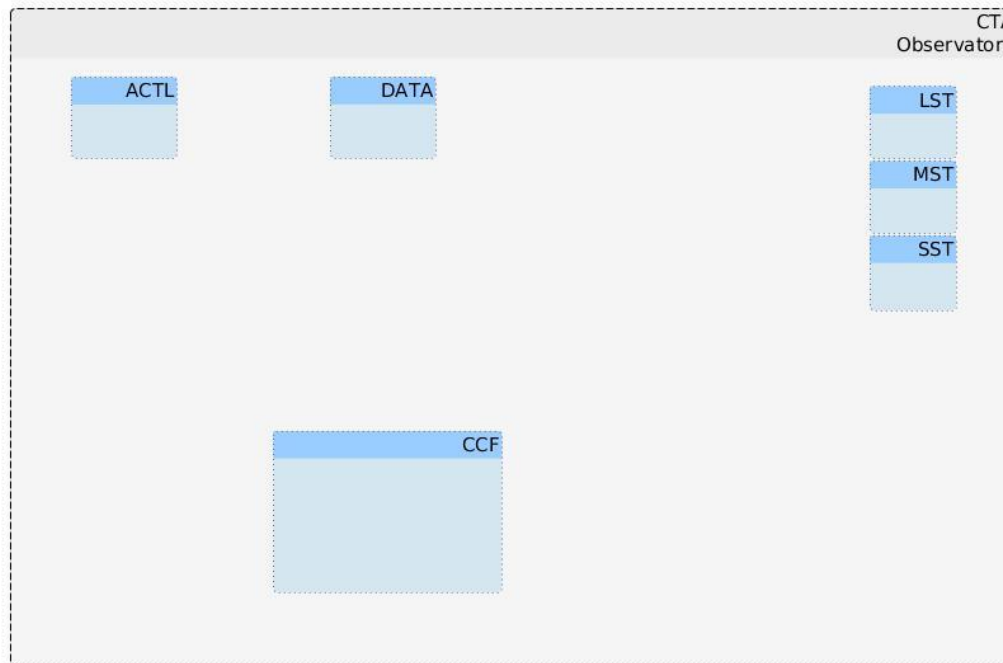**Component level** — Camera slow control, DAQ, Trigger, etc.

Organization (levels of UCs)

- Not clear how many (ACTL and LST Telescope has described at least 3)
- High Level: UC-COM-CCF-0000X

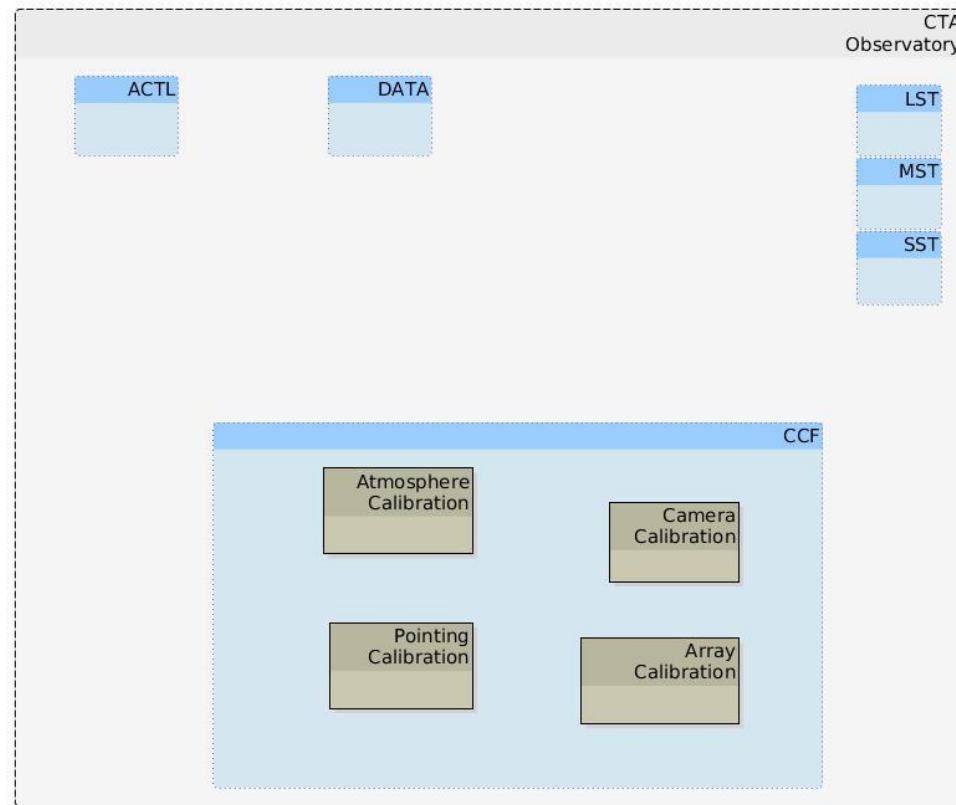High level UCs must describes CCF as a black box

Organization (levels of UCs)

- Not clear how many (ACTL and LST Telescope has described at least 3)
- High Level: UC-COM-CCF-0000X -> CCF as a black box
  - UC-COM-CCF-00001: Calibration of CTA data
  - UC-COM-CCF-00002: Monitoring of site environment conditions
  - UC-COM-CCF-00003: Optimize the quality of observations and CTA duty cycle
  - …?

Organization (levels of UCs)

- Not clear how many (ACTL and LST Telescope has described at least 3)
- Second level: UC-COM-CCF-XY000

High level UCs must describes CCF sub-WP as a black box

Organization (levels of UCs)

- Not clear how many (ACTL and LST Telescope has described at least 3)
- Second level: UC-COM-CCF-XY000 -> CCF sub-WP (X) as a black box. Functionalities (Y) of the different sub-WP:
  - 1Y000 -> Camera Calibration (X=1)
  - 2Y000 -> Array Calibration (X=2)
  - 3Y000 -> Atmosphere Calibration (X=3)
  - 4Y000 -> Pointing Calibration (X=4)

Organization (levels of UCs)

- Not clear how many (ACTL and LST Telescope has described at least 3)
- Second level: UC-COM-CCF-XY000 -> CCF sub-WP (X) as a black box. Functionalities (Y) of the different sub-WP:
  - 3Y000 -> **Atmosphere Calibration** (X=3)
    - UC-COM-CCF-3100: Atmosphere modeling (site climatology) (*GDAS/WRF, Sun/Moon photometer, ARCADE LIDAR, Radiosondes, Weather monitoring for LSTs, archival data from MAGIC LIDAR, archival data from optical telescopes at the ORM, satellite data*)
    - UC-COM-CCF-32000: Atmospheric monitoring for online dynamic short-term scheduling (*ASC, Ceilometer*)
    - UC-COM-CCF-33000: Correction and selection of MC and Data and MC using Atmospheric Parameters (*LIDARs, FRAM, CTC, Spectrometer*)
    - UC-COM-CCF-34000: Common CTA weather monitoring (*Classic weather station, Anemometers, Dust counters, Weather forecast, Satellite data*)
    - UC-COM-CCF-3500: Monitoring of CTA-S earthquakes (*Accelerometers*)
    - UC-COM-CCF-36000: Monitoring of CTA-N weather (*Rain sensors, Electric field mills, National Rain Radars*)

Organization (levels of UCs)

- Not clear how many (ACTL and LST Telescope has described at least 3)
- Third level: UC-COM-CCF-XYZMN -> CCF sub-WP device/method (Z) as a black box. Functionalities (M) of the different device/method.
  - XYZ1N -> Operation (e.g. N control, etc. UCs)
  - XYZ2N -> Production of Calibration Events (e.g. N ways of producing the calibration events)
  - XYZ3N -> Production of Calibration Products (e.g. N different Products)
  - XYZ4N -> Integration of Calibration Products
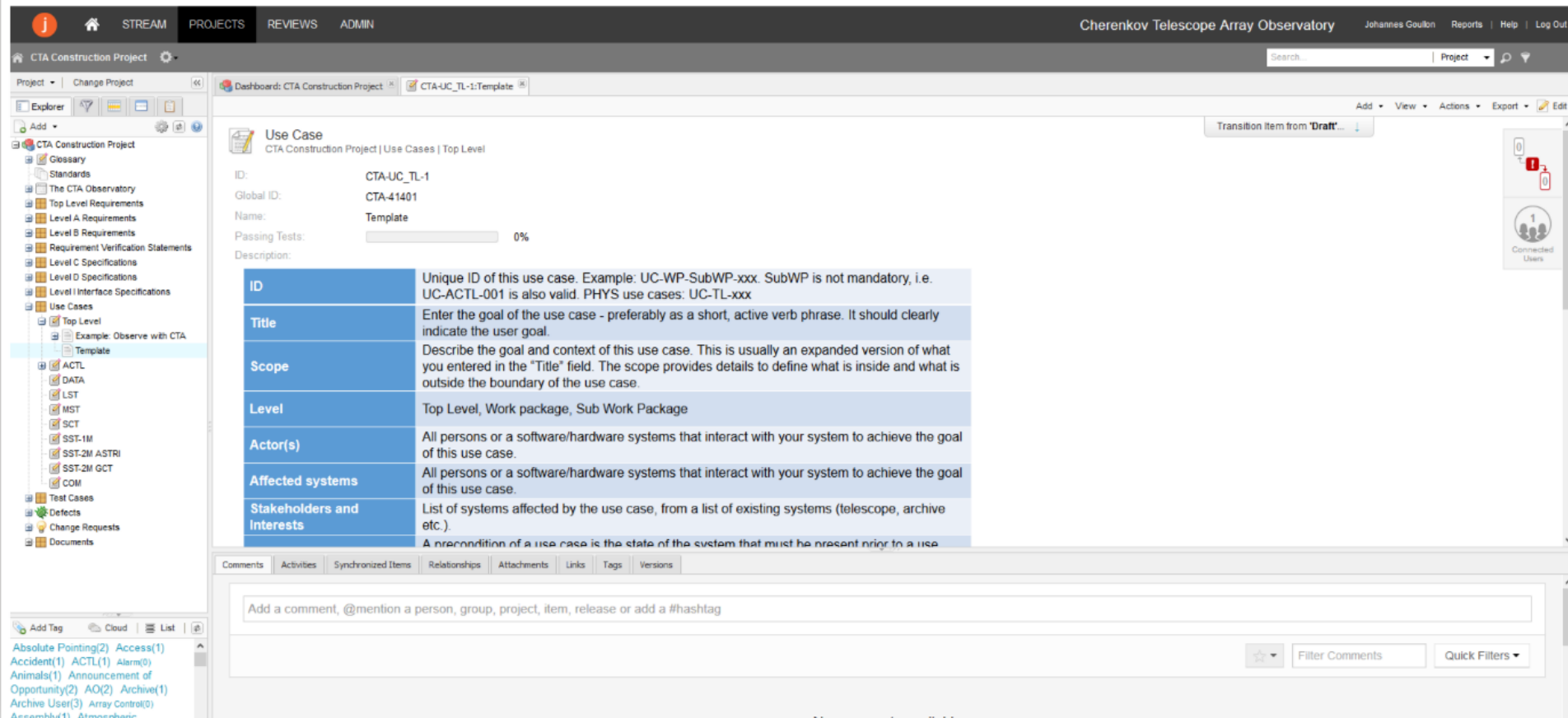
Organization (levels of UCs) (e.g. Weather monitoring)

- UC-COM-CCF-34000: Common CTA weather monitoring
  - Affected systems: Classic weather station (1), Anemometers (2), Dust counters (3), Weather forecast (4), Satellite data (5)
  - Trigger: Safety of humans, equipment and data
  - Frequency: continuous
    - UC-COM-CCF-3411x: Operation of classic Weather station
      Note: Here there should be a list of UCs that describe how to operate the device (e.g. start up and shutdown device)
    - UC-COM-CCF-3412x: Production of classic Weather station Monitoring Events
      Note: Here there should be a list of UCs that describe how to produce the monitoring events (equivalent to "Perform observation" for telescopes)
    - UC-COM-CCF-3421x: Operation of Anemometers
      Note: Here there should be a list of UCs that describe how to operate the device (e.g. start up and shutdown device)
    - UC-COM-CCF-3422x: Production of Anemometers Monitoring Events
      Note: Here there should be a list of UCs that describe how to produce the monitoring events (equivalent to "Perform observation" for telescopes)
    - UC-COM-CCF-3431x: Operation of Dust counters
      Note: Here there should be a list of UCs that describe how to operate the device (e.g. start up and shutdown device)
    - UC-COM-CCF-3432x: Production of Dust counters Monitoring Events
      Note: Here there should be a list of UCs that describe how to produce the monitoring events (equivalent to "Perform observation" for telescopes)
    - UC-COM-CCF-3442x: Production of Weather forecast Monitoring Events
      Note: Here there should be a list of UCs that describe how to produce the

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Use cases template

Next steps on UCs

- Current general document:
  - https://docs.google.com/document/d/17UQMUNBF1Y5jz5f1Xn3J-MYoGBxngoIoBL_fmBGMwco/edit
- Atmosphere Calibration UCs document:
  - https://docs.google.com/document/d/1rMg26GChZaBZ8Ast_U9a_aG-Gt00rwHhYL-zVMKpdbE/edit
- This meeting:
  - Fix the list of UCs at the sub-WP level (UC-COM-CCF-XYZ00)
  - Agree on UCs category division (M, etc.)
  - Define a person responsible of the UCs:
    - First two levels: R. de los Reyes, M. Gaug + CCF board + volunteers
    - Last two levels: Equipment/method responsible people (help from R. de los Reyes, M. Gaug + CCF board)
- Create different *googledoc* documents to share among responsible people (small group of people) for discussion.
- Next months:
  - Include the list of UCs in Jama (assigned to the "person responsible").
  - Implement the lower UCs level (N)
- Select few representative UCs (e.g. weather monitoring, LIDAR,…?)
- Fill the UCs template for the representative UCs and those requested through Jama to be filled by other WP (e.g. ACTL).