



ATMO ACCESS
Access to Atmospheric Research Facilities



Services provided by CMN-PV

CNR-ISAC Monte Cimone - Po Valley



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atmo-access.eu

SERVICE 1 - Calibration of chemiluminescence NO _x analyzers at CMN-PV	
LOCATION	<p>Italy, Monte Cimone (Modena)</p> <p>The "O. Vittori" observatory at Mt. Cimone (44°12' N, 10°42' E, 2165 m a.s.l.), is a research facilities managed by the National Research Council of Italy (CNR) and hosted by the Italian Air Force (CAMM).</p> <p>See http://actris-cimone.isac.cnr.it/measurement_sites/cimone.</p>
TYPE OF SERVICE	Technical service
SERVICE DESCRIPTION	<p>Calibration of chemiluminescence NO_x analyzers with NO dilution and GPT. Equipment: zero air generator (Thermo 1160), dilution system (Thermo146i with range of dilution flow (0-5 SLPM), range of span flow (0-100 sccm)), 5ppm NO standard in N₂ (NPL). Air-conditioning systems are available at the laboratories where instruments are located together with devices for protection by power surges and lightning.</p> <p>This service includes:</p> <ul style="list-style-type: none"> – Administrative support for helping the users with shipping of materials (before and after the campaign). – Administrative support for the fulfilment of the internal procedures related with the provision access (Mt. Cimone is located in a military area). – Storing of the equipment at the CNR-ISAC headquarters before and after the access. – Technical support at the infrastructure by senior technicians, including support during installation of equipment and execution of measurements. – Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy. – Shipping to the infrastructure from Bologna (not dangerous goods) for equipment with total volume < 2 m³ (max: 350 kg) except than during snow season. The transport of dangerous good or larger/heavier materials which need special vehicles is NOT included in the offered services. – Daily transportation of max 2 people to the infrastructure (during the snow season this cannot be fully guaranteed).
ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	The service is available (operational and ready to be offered)

AVAILABILITY PERIOD	All year round, but accessibility cannot be fully guaranteed during the snow season
TIME CONSTRAINTS	Multi-day stay of external users at the “O. Vittori” observatory must be discussed and planned with CNR-ISAC. External users are allowed to access the “O. Vittori” observatory only under CNR-ISAC personnel supervision. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 2 – Calibration of ozone analyzers	
LOCATION	Italy, Monte Cimone (Modena)
TYPE OF SERVICE	Technical service
SERVICE DESCRIPTION	<p>Calibration of ozone analyzers with secondary ozone calibrator. Equipment: secondary ozone calibrator Thermo 49i-PS with WMO-GAW certification. Air-conditioning systems are available at the laboratories where instruments are located together with devices for protection by power surges and lightning. More information at http://actris-cimone.isac.cnr.it/measurement_sites/cimone</p> <p>This service includes:</p> <ul style="list-style-type: none"> – Administrative support for helping the users with shipping of materials (before and after the campaign). – Administrative support for the fulfilment of the internal procedures related with the provision access (Mt. Cimone is located in a military area). – Storing of the equipment at the CNR-ISAC headquarters before and after the access. – Technical support at the infrastructure by senior technicians, including support during installation of equipment and execution of measurements. – Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy. – Shipping to the infrastructure from Bologna (not dangerous goods) for equipment with total volume < 2 m3 (max: 350 kg) except than during snow season. The transport of dangerous good or larger/heavier materials which need special vehicles is NOT included in the offered services. – Daily transportation of max 2 people to the infrastructure (during the snow season this cannot be fully guaranteed).
ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	The service is available (operational and ready to be offered)
AVAILABILITY PERIOD	All year round, but accessibility cannot be fully guaranteed during the snow season

TIME CONSTRAINTS	Multi-day stay of external users at the “O. Vittori” observatory must be discussed and planned with CNR-ISAC. External users are allowed to access the “O. Vittori” observatory only under CNR-ISAC personnel supervision. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 3 – Calibration of ozone analyzers	
LOCATION	Italy, Bologna
TYPE OF SERVICE	Technical service
SERVICE DESCRIPTION	<p>Calibration of ozone analysers with secondary ozone calibrator. Equipment: secondary ozone calibrator Thermo 49i-PS with WMO-GAW certification. More information http://actris-cimone.isac.cnr.it/measurement_sites/bologna</p> <p>This service includes:</p> <ul style="list-style-type: none"> – Administrative support for helping the users with shipping of materials (before and after the campaign). – Administrative support for the fulfilment of the internal procedures related with the provision of access to CNR-ISAC HQs. – Storing of the equipment at the CNR-ISAC headquarters before and after the access. – Technical support at the infrastructure by senior technicians, including support during installation of equipment and execution of measurements. – Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy. – Access to chemistry laboratories and instrumental workshops at CNR-ISAC HQs.
ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	The service is available (operational and ready to be offered)
AVAILABILITY PERIOD	All year round
TIME CONSTRAINTS	Access to the CNR Campus is typically not allowed during the weekend and over 20:00 – 7:00 local time. External users are allowed to access the CNR-ISAC HQs only with presence of CNR personnel. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 4 – DOAS measurement facility	
LOCATION	Italy, S. Pietro Capofiume (Bologna)

	<p>The CMN-PV facility at S. Pietro Capofiume (50 km from Bologna) is located at the meteorological station “Giorgio Fea” which is owned by ARPAE Emilia-Romagna (43°21’N, 12°34’E, 11 m asl). http://actris-cimone.isac.cnr.it/measurement_sites/spc</p>
TYPE OF SERVICE	Research service
SERVICE DESCRIPTION	<p>Provision of a rural site platform for DOAS and MAX-DOAS measurements with focus on tropospheric and stratospheric composition and processes, intercomparison campaigns and satellite validation.</p> <p>The facility is equipped with in-situ near-surface monitoring of SO₂, particulate matter sampling for atmospheric chemical speciation, speciation of non-refractory chemical species (by Aerosol Mass Spectrometer, AMS) and measurements of number concentration (by twin - DMPS in collaboration with the University of Kuopio and one OPS). A MAX-DOAS system (SkySpec-2D-210) is available at the station (NO₂, SO₂, HCHO, HONO, Glyoxal, BrO, IO, Ozone). Further observations will be implemented during 2022: physico-chemical-optical properties of both columnar aerosol population (sun photometry and lidar), near-surface aerosol scattering and absorption measurements, near-surface anthropogenic VOCs, SF₆ and F-gases, radiative balance and albedo description (solar tracker equipped with radiometers for solar and thermal down-welling radiation).</p> <p>ARPAE Emilia-Romagna runs near-surface measurements of nitrogen oxides, ozone as well as meteo-radar measurements, radio soundings (at 00:00 and 12:00 UTC) and operates a phenological station.</p> <p>The facility is hosted in an air-conditioned shelter (15 m²) equipped with fast internet connection which allows for real-time data delivery and remote control of instrumentations. 5kW. Two sampling systems (ACTRIS-compliant) designed for trace gases and aerosol particles (respectively) are available at the station. Both the sampling systems are characterized by monitoring of T and RH with active control of air fluxes. Multiple inlets to the sampling systems are available for the external users (diameters: ¼” for trace gases and ¼”, ½ and ¾” for aerosol). Three quartz windows (one on the roof, two on the walls) are available for vertical and horizontal remote sensing observations.</p> <p>Support structures to research activities are available at the field station: a chemistry laboratory, wi-fi covering the entire area, distribution of electric current through specific towers in different locations of the field, a 10-m two-storey tower.</p> <p>This service includes:</p> <ul style="list-style-type: none"> – Administrative support for helping the users with shipping of materials (before and after the campaign) – Administrative support for the fulfilment of the internal procedures related with the provision access to the site. – Storing of the equipment at the CNR-ISAC HQs before and after the access. – Technical support at the infrastructure by senior technicians (including the support during installation of equipment and execution of measurements).

	<ul style="list-style-type: none"> – Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy. – Activation of data delivery service and access to data routinely recorded by CNR-ISAC. – Administrative support will be provided to ask access to the data by ARPAE Emilia – Romagna. – Access to the air quality and weather forecasts routinely produced by CNR-ISAC. – Access to laboratory and workshops at CNR-ISAC HQs for maintenance of instrumentation. – Transport to the infrastructure from Bologna (not dangerous goods) for equipment with total volume less than 2 m³ (max: 350 kg). The transport of dangerous good or larger/heavier materials which need special vehicles is NOT included in the offered services. – Daily transportation of max 3 users to the facility (please note that not-UE users equipped with their own car/van must have an International Driving Permit valid in EU).
ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	Implementation
AVAILABILITY PERIOD	All year round
TIME CONSTRAINTS	Access to the S. Pietro Capofiume site is typically not allowed during the weekend and over 20:00 – 7:00 local time. External users are allowed to access site only under CNR-ISAC personnel supervision. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 5 – Calibration of chemiluminescence analyzers at CMN-PV	
LOCATION	Italy, Bologna
TYPE OF SERVICE	Technical service
SERVICE DESCRIPTION	<p>Calibration of chemiluminescence NO_x analysers with NO dilution and GPT. Equipment: zero air generator (Thermo 1160), dilution system (Thermo146i with range of dilution flow (0-5 SLPM), range of span flow (0-100 sccm)), 5ppm NO certified standard in N₂.</p> <p>This service includes:</p> <ul style="list-style-type: none"> – Administrative support for helping the users with shipping of materials (before and after the campaign).

	<ul style="list-style-type: none"> – Administrative support for the fulfilment of the internal procedures related with the provision of access to CNR-ISAC HQs. – Storing of the equipment at the CNR-ISAC headquarters before and after the access. – Technical support at the infrastructure by senior technicians, including support during installation of equipment and execution of measurements. – Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy. – Access to chemistry laboratories and instrumental workshops at CNR-ISAC HQs.
ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	Implementation
AVAILABILITY PERIOD	All year round
TIME CONSTRAINTS	Access to the CNR Campus is typically not allowed during the weekend and over 20:00 – 7:00 local time. External users are allowed to access the CNR-ISAC HQs only with presence of CNR personnel. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 6 – In-situ intercomparison for near-surface gas and aerosol analyzers	
LOCATION	Italy, Monte Cimone (Modena)
TYPE OF SERVICE	Research service / Technical service
SERVICE DESCRIPTION	<p>Provision of a high-mountain laboratory equipped with ACTRIS-compliant and ICOS-compliant sampling systems for reactive gases, aerosol and GHG as well as manifolds for intercomparison exercises of trace gas and aerosol instruments.</p> <p>The "O. Vittori" observatory at Mt. Cimone is the only high mountain station for atmospheric research both South of the Alps and the Po basin: it represents a strategic platform to study the South Europe and Mediterranean basin troposphere and the anthropogenic emissions from the Po basin. At this platform, co-located atmospheric ICOS and ACTRIS observations exist.</p> <p>Continuous measurement programmes for aerosol properties (physical/optical properties), trace gases (GHG and reactive), meteorological parameters are carried out at Mt. Cimone. The most part of these measurements are ICOS-, ACTRIS-, or INGOS- compliant in terms of equipment, materials and SOP.</p> <p>CMN-PV offers access to state-of-art technical and scientific equipment at the "O. Vittori" observatory. In particular, 2 sampling systems for trace gases and aerosol particles are available. The aerosol sampling system is equipped with T and RH monitoring. Multiple inlets are available for the external users (1/4" for gases, 1/8",</p>

½ and ¾” for aerosol). One slot is available indoor for hosting one guest instrument for remote sensing. The terrace (about 40 m²) is equipped for hosting experimental activity and a small chemistry laboratory permits a clean treatment of collected samplings. Air-conditioning systems are available at the laboratories where instruments are located together with devices for protection by power surges and lightning. Fast internet connection allows real/time data delivery and remote control of acquisition systems.

This service includes:

- Administrative support for helping the users with shipping of materials (before and after the campaign).
- Administrative support for the fulfilment of the internal procedures related with the provision access (Mt. Cimone is located in a military area).
- Storing of the equipment at the CNR-ISAC headquarters before and after the access.
- Technical support at the infrastructure by senior technicians, including support during installation of equipment and execution of measurements.
- Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy.
- Activation of data delivery service and access to data routinely recorded at the station.
- Access to air quality and weather forecasts routinely produced by CNR-ISAC.
- Access to storage and computation resources for the duration of TNA+12 months.
- Shipping to the infrastructure from Bologna (not dangerous goods) for equipment with total volume < 2 m³ (max: 350 kg) except than during snow season. The transport of dangerous good or larger/heavier materials which need special vehicles are NOT included in the offered services.
- Daily transportation of max 2 people to the infrastructure (during the snow season this cannot be fully guaranteed).
- The "O. Vittori" observatory is equipped for overnight stay (max 5 people). Also a small kitchen is available.

ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	The service is available (operational and ready to be offered)
AVAILABILITY PERIOD	All year round, but accessibility cannot be fully guaranteed during the snow season
TIME CONSTRAINTS	As a function of the available slots for guest instruments. Multi-day stay of external users at the “O. Vittori” observatory must be discussed and planned with CNR-ISAC.

	<p>External users are allowed to access the “O. Vittori” observatory only under CNR-ISAC personnel supervision.</p> <p>Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.</p>
CONTACT	atmo-access@isac.cnr.it
SERVICE 7 – In-situ intercomparison for near-surface gas and aerosol analysers	
LOCATION	Italy, Bologna
TYPE OF SERVICE	Research service / Technical service
SERVICE DESCRIPTION	<p>Provision of an <i>urban site platform</i> equipped with ACTRIS-compliant sampling systems for reactive gases and aerosol with manifolds for intercomparison exercises of trace gas and aerosol instruments.</p> <p>The CMN-PV facility at Bologna is located on the roof of the CNR-ISAC HQs (25 m a.g.l.) within the CNR campus (Via Gobetti 101) at the city suburbs (http://actris-cimone.isac.cnr.it/measurement_sites/bologna).</p> <p>The measurement site is classified as urban background. The A14 motorway, BLQ international airport and the city center are located 0.8 km to North, 2.6 km to West and 1.7 km to South.</p> <p>The facility is hosted in an air-conditioned shelter (15 m²) located at the roof of CNR-ISAC HQs (39 m a.g.l.) equipped with fast internet connection which allows for real-time data delivery and remote control of instrumentations. Two sampling systems (ACTRIS-compliant) designed for trace gases and aerosol particles (respectively) are available at the station. Both the sampling systems are characterized by monitoring of T and RH with active control of air fluxes. Multiple inlets to the sampling systems are available for the external users (diameters: ¼” for trace gases and ¼”, ½ and ¾” for aerosol). Three quartz windows (one on the roof, two on the walls) are available for vertical and horizontal remote sensing observations. Host instrumentations are represented by one ozone UV-absorption analyzer, one chemiluminescence NO_x analyzer (with pre-reactor) and one meteorological station. A self-built MAX-DOAS system (TROPOGAS) is available at the station for measurement of trace gases (NO₂, Ozone). A secondary ozone calibrator is available at the CNR-ISAC HQs. During 2022 the instrumental suite will be implemented (calibration facility for NO_x, OPC, nephelometer). Submicron aerosol chemical composition by HR-ToF-AMS and equivalent black carbon observations are available by ARPAE-Emilia Romagna at the near "Supersito" site.</p> <p>This service includes:</p> <ul style="list-style-type: none"> – Administrative support for helping the users with shipping of materials (before and after the campaign) – Administrative support for the fulfilment of the internal procedures related with the provision of access to CNR-ISAC HQs. – Storing of the equipment at the CNR-ISAC HQs before and after the access.

	<ul style="list-style-type: none"> – Technical support at the infrastructure by senior technicians (including the support during installation of equipment and execution of measurements). – Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy. – Activation of data delivery service and access to data routinely recorded at the station by CNR - ISAC. – Access to the air quality and weather forecasts routinely produced by CNR-ISAC. – Access to storage and computation resources available at CNR-ISAC HQs for the duration of the TNA+12 months. – Access to chemistry laboratories and instrumental workshops at CNR-ISAC HQs.
ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	The service is available (operational and ready to be offered)
AVAILABILITY PERIOD	All year round
TIME CONSTRAINTS	As a function of the available slots for guest instruments. Access to the CNR Campus is typically not allowed during the weekend and over 20:00 – 7:00 local time. External users are allowed to access the CNR-ISAC HQs only with presence of CNR personnel. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 8 – In-situ intercomparison for near-surface gas and aerosol analysers	
LOCATION	Italy, S. Pietro Capofiume (Bologna)
TYPE OF SERVICE	Research service / Technical service
SERVICE DESCRIPTION	<p>Provision of a <i>rural site platform</i> equipped with ACTRIS-compliant sampling systems for reactive gases and aerosol with manifolds for intercomparison exercises of trace gas and aerosol instruments.</p> <p>The station is equipped with in-situ near-surface monitoring of SO₂, particulate matter sampling for atmospheric chemical speciation, speciation of non-refractory chemical species (by Aerosol Mass Specrometer, AMS) and measurements of particle number concentration (by twin - DMPS in collaboration with the University of Kuopio and one OPS). A MAX-DOAS system (SkySpec-2D-210) is available at the station (NO₂, SO₂, HCHO, HONO, Glyoxal, BrO, IO, Ozone). Further observations will be implemented during 2022: physico-chemical-optical properties of both columnar aerosol population (sun photometry and lidar), near-surface aerosol scattering and absorption measurements, near-surface anthropogenic VOCs, SF₆ and F-gases, radiative balance and albedo description</p>

(solar tracker equipped with radiometers for solar and thermal down-welling radiation).

ARPAE Emilia-Romagna runs near-surface measurements of nitrogen oxides, ozone as well as meteo-radar measurements, radio soundings (at 00:00 and 12:00 UTC) and operates a phenological station.

The facility is hosted in an air-conditioned shelter (15 m²) equipped with fast internet connection which allows for real-time data delivery and remote control of instrumentations. 5kW. Two sampling systems (ACTRIS-compliant) designed for trace gases and aerosol particles (respectively) are available at the station. Both the sampling systems are characterized by monitoring of T and RH with active control of air fluxes. Multiple inlets to the sampling systems are available for the external users (diameters: ¼" for trace gases and ¼", ½ and ¾" for aerosol). Three quartz windows (one on the roof, two on the walls) are available for vertical and horizontal remote sensing observations. Support structures to research activities are available at the field station: a chemistry laboratory, wi-fi covering the entire area, distribution of electric current through specific towers in different locations of the field, a 10-m two-storey tower.

This service includes:

- Administrative support for helping the users with shipping of materials (before and after the campaign)
- Administrative support for the fulfilment of the internal procedures related with the provision access to the site.
- Storing of the equipment at the CNR-ISAC HQs before and after the access.
- Technical support at the infrastructure by senior technicians (including the support during installation of equipment and execution of measurements).
- Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy.
- Activation of data delivery service and access to data routinely recorded by CNR-ISAC.
- Administrative support will be provided to ask access to the data by ARPAE Emilia – Romagna.
- Access to the air quality and weather forecasts routinely produced by CNR-ISAC.
- Access to storage and computation resources available at CNR-ISAC HQs for the duration of the TNA+12 months.
- Access to laboratory and workshops at CNR-ISAC HQs for maintenance of instrumentation.
- Transport to the infrastructure from Bologna (not dangerous goods) for equipment with total volume less than 2 m³ (max: 350 kg). The transport of dangerous good or larger/heavier materials which need special vehicles is NOT included in the offered services.
- Daily transportation of max 3 users to the facility (not-UE users equipped with their own car/van must have an International Driving Permit valid in EU).

ATMOSPHERE TYPE

Ambient



TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	The service is available (operational and ready to be offered)
AVAILABILITY PERIOD	All year round
TIME CONSTRAINTS	As a function of the available slots for guest instruments. Access to the S. Pietro Capofiume site is typically not allowed during the weekend and over 20:00 – 7:00 local time. External users are allowed to access site only under CNR-ISAC personnel supervision. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 9 – Analysis of atmospheric process by in-situ "near-surface" observations at a high mountain site	
LOCATION	Italy, Monte Cimone (Modena)
TYPE OF SERVICE	Research service /Training service/Data service
SERVICE DESCRIPTION	<p>Provision of a high-mountain platform for investigation of atmospheric processes related to reactive and greenhouse gases, aerosol and clouds.</p> <p>The "O. Vittori" observatory is the only high mountain station for atmospheric research both South of the Alps and the Po basin: it represents a strategic platform to study the South Europe and Mediterranean basin troposphere and the anthropogenic emissions from the Po basin. At this platform, co-located atmospheric ICOS and ACTRIS observations exist.</p> <p>Continuous measurement programmes for aerosol properties (physical/optical properties), trace gases (GHG and reactive), meteorological parameters are carried out at Mt. Cimone. The most part of these measurements are ICOS-, ACTRIS-, or INGOS- compliant in terms of equipment, materials and SOP.</p> <p>CMN-PV offers access to state-of-art technical and scientific equipment at the "O. Vittori" observatory. In particular, 2 sampling systems for trace gases and aerosol particles are available. The aerosol sampling system is equipped with T and RH monitoring. Multiple inlets are available for the external users (1/4" for gases, 1/4", 1/2 and 3/4" for aerosol). One slot is available indoor for hosting one guest instrument for remote sensing. The terrace (about 40 m2) is equipped for hosting experimental activity and a small chemistry laboratory permits a clean treatment of collected samplings. Air-conditioning systems are available at the laboratories where instruments are located together with devices for protection by power surges and lightning. Fast internet connection allows real/time data delivery and remote control of acquisition systems. The "O. Vittori" observatory is equipped for overnight stay (max 5 people). Also a small kitchen is available.</p> <p>This service includes:</p>

	<ul style="list-style-type: none"> – Administrative support for helping the users with shipping of materials (before and after the campaign). – Administrative support for the fulfilment of the internal procedures related with the provision access (Mt. Cimone is located in a military area). – Storing of the equipment at the CNR-ISAC headquarters before and after the access. – Technical support at the infrastructure by senior technicians, including support during installation of equipment and execution of measurements. – Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy. – Activation of data delivery service and access to data routinely recorded at the station. – Access to air quality and weather forecasts routinely produced by CNR-ISAC. – Access to storage and computation resources for the duration of TNA+12 months. – Shipping to the infrastructure from Bologna (not dangerous goods) for equipment with total volume < 2 m3 (max: 350 kg) except than during snow season. The transport of dangerous good or larger/heavier materials which need special vehicles is NOT included in the offered services. – Daily transportation of max 2 people to the infrastructure (during the snow season this cannot be fully guaranteed).
ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	The service is available (operational and ready to be offered)
AVAILABILITY PERIOD	All year round, but accessibility cannot be fully guaranteed during the snow season
TIME CONSTRAINTS	As a function of the available slots for guest instruments. Multi-day stay of external users at the “O. Vittori” observatory must be discussed and planned with CNR-ISAC. External users are allowed to access the “O. Vittori” observatory only under CNR-ISAC personnel supervision. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 10 – Analysis of atmospheric process by in-situ "near-surface" observations at an urban site	
LOCATION	Italy, Bologna
TYPE OF SERVICE	Research service /Training service/Data service
SERVICE DESCRIPTION	Provision of an urban platform for investigation of atmospheric processes related to reactive and greenhouse gases, aerosol and clouds.

The measurement site is classified as urban background. The A14 motorway, BLQ international airport and the city center are located 0.8 km to North, 2.6 km to West and 1.7 km to South.

The facility is hosted in an air-conditioned shelter (15 m²) located at the roof of CNR-ISAC HQs (39 m a.g.l.) equipped with fast internet connection which allows for real-time data delivery and remote control of instrumentations. Two sampling systems (ACTRIS-compliant) designed for trace gases and aerosol particles (respectively) are available at the station. Both the sampling systems are characterized by monitoring of T and RH with active control of air fluxes. Multiple inlets to the sampling systems are available for the external users (diameters: ¼" for trace gases and ¼", ½ and ¾" for aerosol). Three quartz windows (one on the roof, two on the walls) are available for vertical and horizontal remote sensing observations. Host instrumentations are represented by one ozone UV-absorption analyzer, one chemiluminescence NO_x analyzer (with pre-reactor) and one meteorological station. A self-built MAX-DOAS system (TROPOGAS) is available at the station for measurement of trace gases (NO₂, Ozone). A secondary ozone calibrator is available at the CNR-ISAC HQs. During 2022 the instrumental suite will be implemented (calibration facility for NO_x, OPC, nephelometer). Submicron aerosol chemical composition by HR-ToF-AMS and equivalent black carbon observations are available by ARPAE-Emilia Romagna at the near "Supersito" site.

This service includes:

- Administrative support for helping the users with shipping of materials (before and after the campaign)
- Administrative support for the fulfilment of the internal procedures related with the provision of access to CNR/ISAC HQs.
- Storing of the equipment at the CNR-ISAC HQs before and after the access.
- Technical support at the infrastructure by senior technicians (including the support during installation of equipment and execution of measurements).
- Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy.
- Activation of data delivery service and access to data routinely recorded at the station by CNR - ISAC.
- Access to the air quality and weather forecasts routinely produced by CNR-ISAC.
- Access to storage and computation resources available at CNR-ISAC HQs for the duration of the TNA+12 months.
- Access to chemistry laboratories and instrumental workshops at CNR-ISAC HQs.

ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector

SERVICE STATUS	The service is available (operational and ready to be offered)
AVAILABILITY PERIOD	All year round
TIME CONSTRAINTS	As a function of the available slots for guest instruments. Please note that access to the CNR Campus is typically not allowed during the weekend and over 20:00 – 7:00 local time. External users are allowed to access the CNR-ISAC HQs only with presence of CNR personnel. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
CONTACT	atmo-access@isac.cnr.it
SERVICE 11 – Analysis of atmospheric process by in-situ "near-surface" observations at a rural site	
LOCATION	Italy, S. Pietro Capofiume (Bologna)
TYPE OF SERVICE	Research service /Training service/Data service
SERVICE DESCRIPTION	<p>Provision of a rural platform for investigation of atmospheric processes related to reactive and greenhouse gases, aerosol and clouds.</p> <p>The facility is equipped with in-situ near-surface monitoring of SO₂, particulate matter sampling for atmospheric chemical speciation, speciation of non-refractory chemical species (by Aerosol Mass Spectrometer, AMS) and measurements of number concentration (by twin - DMPS in collaboration with the University of Kuopio and one OPS). A MAX-DOAS system (SkySpec-2D-210) is available at the station (NO₂, SO₂, HCHO, HONO, Glyoxal, BrO, IO, Ozone). Further observations will be implemented during 2022: physico-chemical-optical properties of both columnar aerosol population (sun photometry and lidar), near-surface aerosol scattering and absorption measurements, near-surface anthropogenic VOCs, SF₆ and F-gases, radiative balance and albedo description (solar tracker equipped with radiometers for solar and thermal down-welling radiation).</p> <p>ARPAE Emilia-Romagna runs near-surface measurements of nitrogen oxides, ozone as well as meteo-radar measurements, radio soundings (at 00:00 and 12:00 UTC) and operates a phenological station.</p> <p>The facility is hosted in an air-conditioned shelter (15 m²) equipped with fast internet connection which allows for real-time data delivery and remote control of instrumentations. 5kW. Two sampling systems (ACTRIS-compliant) designed for trace gases and aerosol particles (respectively) are available at the station. Both the sampling systems are characterized by monitoring of T and RH with active control of air fluxes. Multiple inlets to the sampling systems are available for the external users (diameters: ¼" for trace gases and ¼", ½ and ¾" for aerosol). Three quartz windows (one on the roof, two on the walls) are available for vertical and horizontal remote sensing observations. Support structures to research activities are available at the field station: a chemistry laboratory, wi-fi covering the entire area, distribution of electric current through specific towers in different locations of the field, a 10-m two-storey tower.</p>

This service includes:

- Administrative support for helping the users with shipping of materials (before and after the campaign)
- Administrative support for the fulfilment of the internal procedures related with the provision access.
- Storing of the equipment at the CNR-ISAC HQs before and after the access.
- Technical support at the infrastructure by senior technicians (including the support during installation of equipment and execution of measurements).
- Interaction with senior atmospheric scientists for data interpretation and optimal definition of experiment strategy.
- Activation of data delivery service and access to data routinely recorded by CNR-ISAC.
- Access to storage and computation resources available at CNR-ISAC HQs for the duration of the TNA+12 months.
- Administrative support will be provided to ask access to the data by ARPAE Emilia – Romagna.
- Access to the air quality and weather forecasts routinely produced by CNR-ISAC.
- Access to laboratory and workshops at CNR-ISAC HQs for maintenance of instrumentation.
- Transport to the infrastructure from Bologna (not dangerous goods) for equipment with total volume less than 2 m³ (max: 350 kg). The transport of dangerous good or larger/heavier materials which need special vehicles is NOT included in the offered services.
- Daily transportation of max 3 users to the facility (not-UE users equipped with their own car/van must have an International Driving Permit valid in EU) .

ATMOSPHERE TYPE	Ambient
TYPE OF ACCESS	Physical, remote
TARGET USERS	Academia, Business, Public sector
SERVICE STATUS	The service is available (operational and ready to be offered)
AVAILABILITY PERIOD	All year round
TIME CONSTRAINTS	As a function of the available slots for guest instruments. Access to the S. Pietro Capofiume site is typically not allowed during the weekend and over 20:00 – 7:00 local time. External users are allowed to access site only under CNR-ISAC personnel supervision. Accessibility rules can change as a function of the evolution of the COVID-19 pandemic.
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