

# WP4: Effect of the COVID related reduction of emissions on greenhouse gases.

Working group:

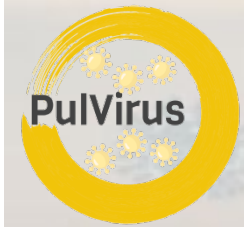
ENEA, *SSPT-OEM* , *SSPT-PVS*

ISPRA, *VAL-ATM*

ARPA Sicilia, *UOC Air Quality*

*Giandomenico Pace*





# WP4: Effect of the COVID related reduction of emissions on greenhouse gases.

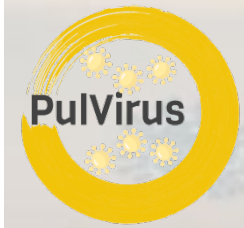
- Activity 4.1

Evaluation of the impact of reducing emissions on environmental concentrations of greenhouse gases.

- Activity 4.2

Evaluation of the effects of the reduction due to COVID-19 of greenhouse gases falling under the United Nations Framework Convention in terms of climate change, with particular reference to the impacts on the Italian system.





## Activity 4.1

# Evaluation of the impact of reducing emissions on environmental concentrations of greenhouse gases

March-April 2019

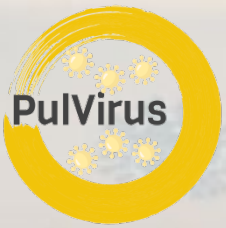
*if and to what extent* the change in anthropogenic CO<sub>2</sub> emissions associated with the lock down could be reflected in the background atmospheric concentration.

How to verify it? What do we need?

Continuous high-precision measurements of atmospheric CO<sub>2</sub> concentration in a background site that has been active for several years.

Highly reliable scenario to possibly relate the atmospheric concentration and the variation of emissions.





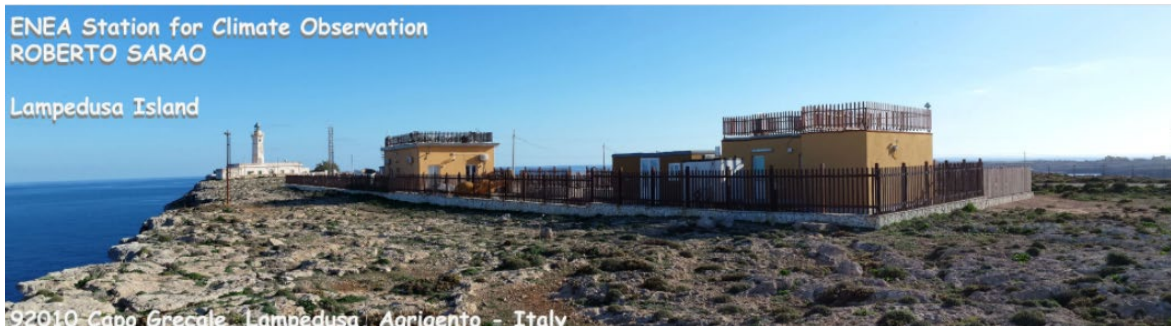
## Activity 4.1

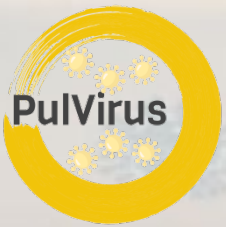
# Evaluation of the impact of reducing emissions on environmental concentrations of greenhouse gases



ENEA manages the Station for Climate Observation of Lampedusa which has a continuous series of CO<sub>2</sub> data from the 1992 (part of the Regional network of Global Atmosphere Watch of WMO, <https://gaw.kishou.go.jp/> and part of the European Research Infrastructure *Integrated Carbon Observation System*)

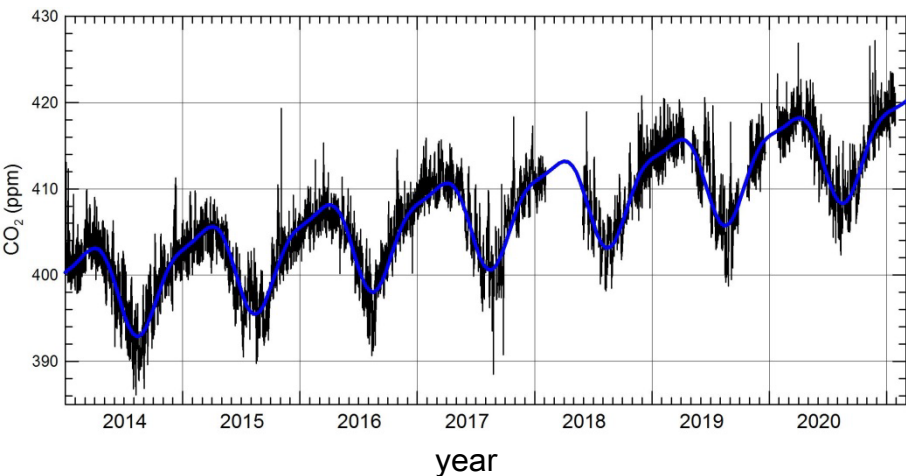
ISPRA develops national CO<sub>2</sub> emission inventories not only annual, but potentially at monthly level





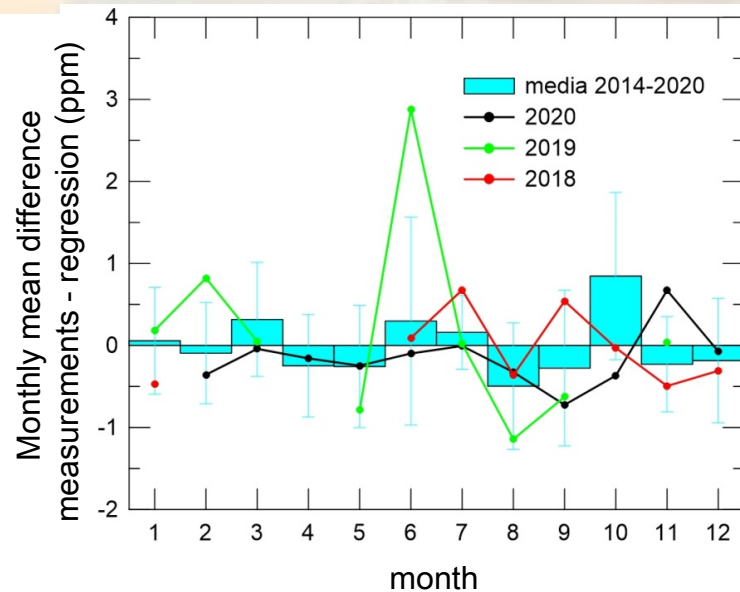
## Activity 4.1

# Evaluation of the impact of reducing emissions on environmental concentrations of greenhouse gases

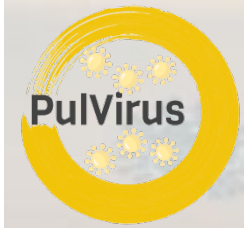


Evolution of the hourly concentration of atmospheric CO<sub>2</sub> measured in Lampedusa.

- annual growth of 2.6 ppm / year,
- amplitude of the annual cycle of 10.5 ppm
- amplitude of the semiannual cycle of 3.0 ppm.



In blue the average differences for the period 2014-2020 with one standard deviation, in red the average differences for 2018, in green for 2019 and in black for the 2020.



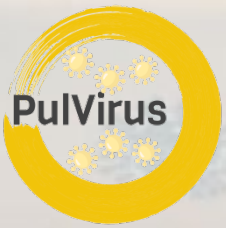
## Activity 4.1

# Evaluation of the impact of reducing emissions on environmental concentrations of greenhouse gases

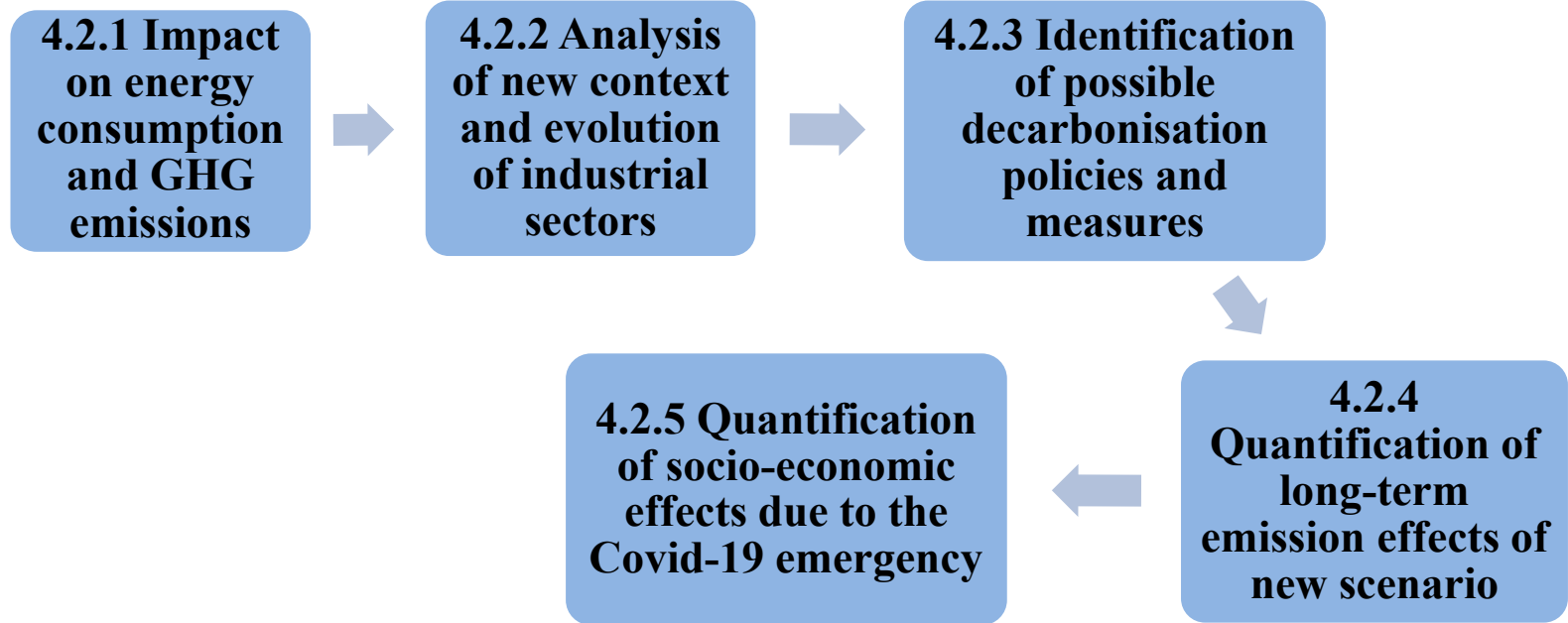
Other targets of the activity 4.1:

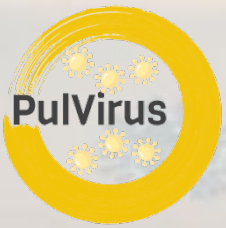
- ✓ databases of both the Lampedusa and the Piano Battaglia (Madonie, 1650m) stations.
- ✓ annual and trimestral national emission scenarios.
- ✓ develop of a regional emission scenario for Sicily.
- ✓ creation of a open database that collects all the data connected to the WP4.1





# Activity 4.2: roadmap



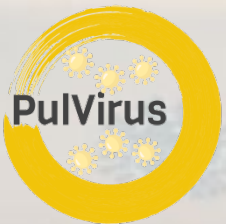


# Activity 4.2: timetable

Like the whole project, Activity 4.2 starts in June 2020, but results are expected at the end of the project, i.e. in June 2022.

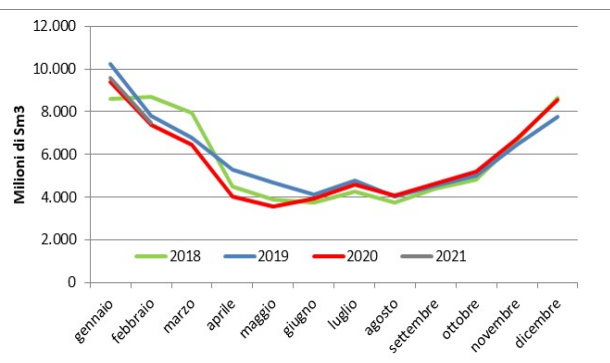
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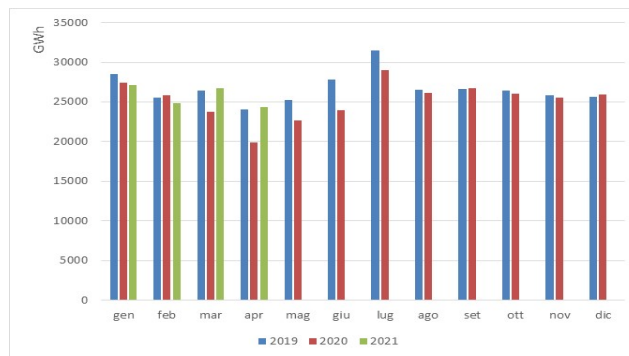


# 4.2.1 – Preliminary results

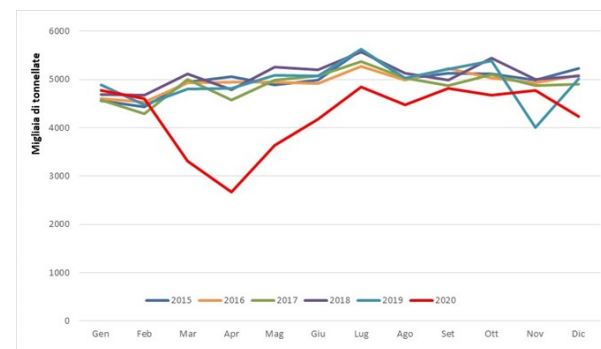
*Final consumption of...*



*Natural gas*

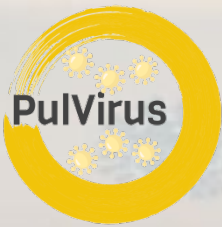


*Electricity*



*Oil products*

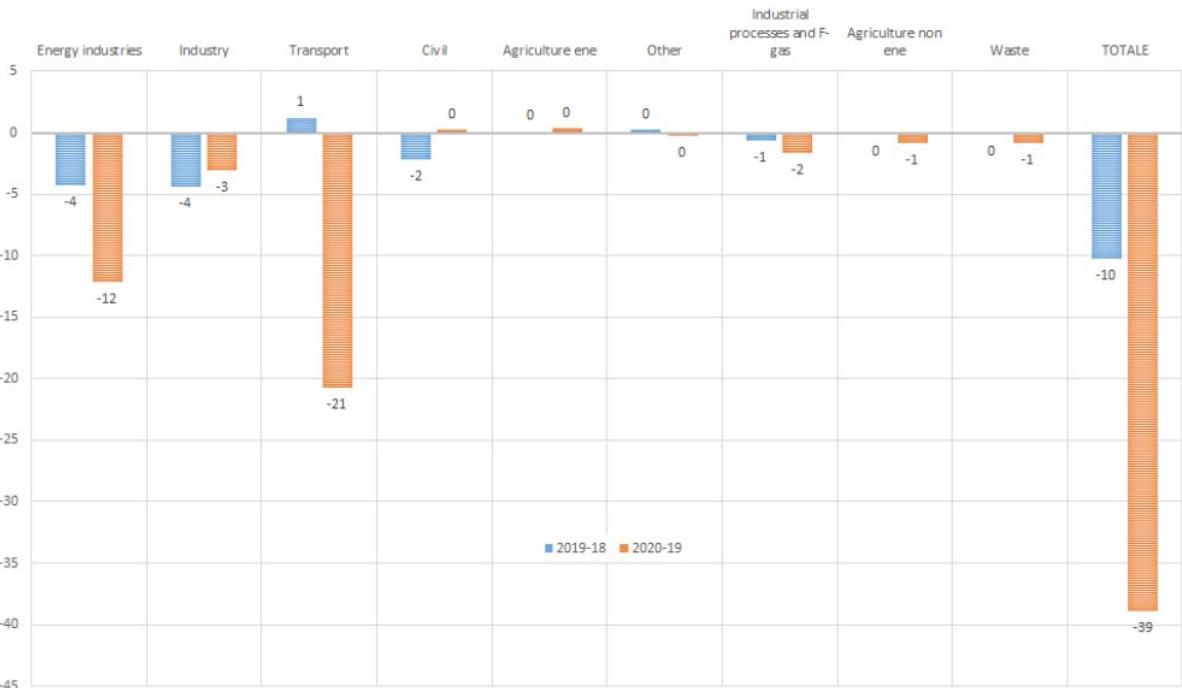




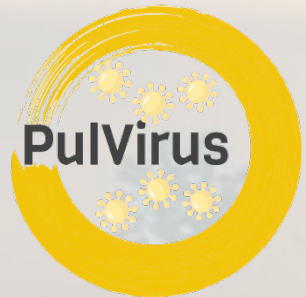
# Activity 4.1

## Evaluation of the impact of reducing emissions on atmospheric composition and on environmental concentrations of greenhouse gases

VARIAZIONI EMISSIONI SETTORIALI  
MtCO<sub>2</sub>eq



*Emission of CO<sub>2</sub>eq by sector:*



# Thanks for your attention

Working group contact persons:

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