

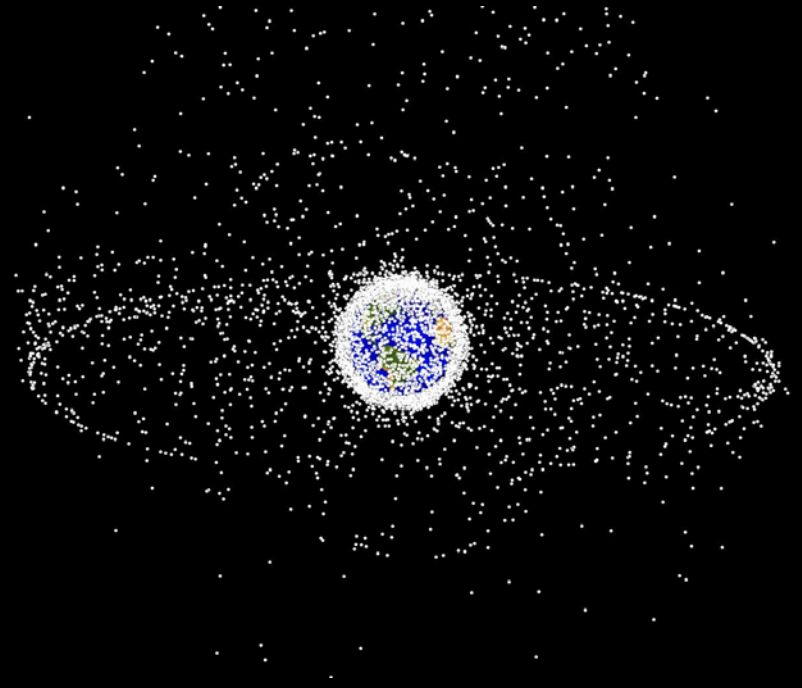
# Performance Index of a Network of Ground-Based Optical Sensors for Space Objects Observation and Measurements



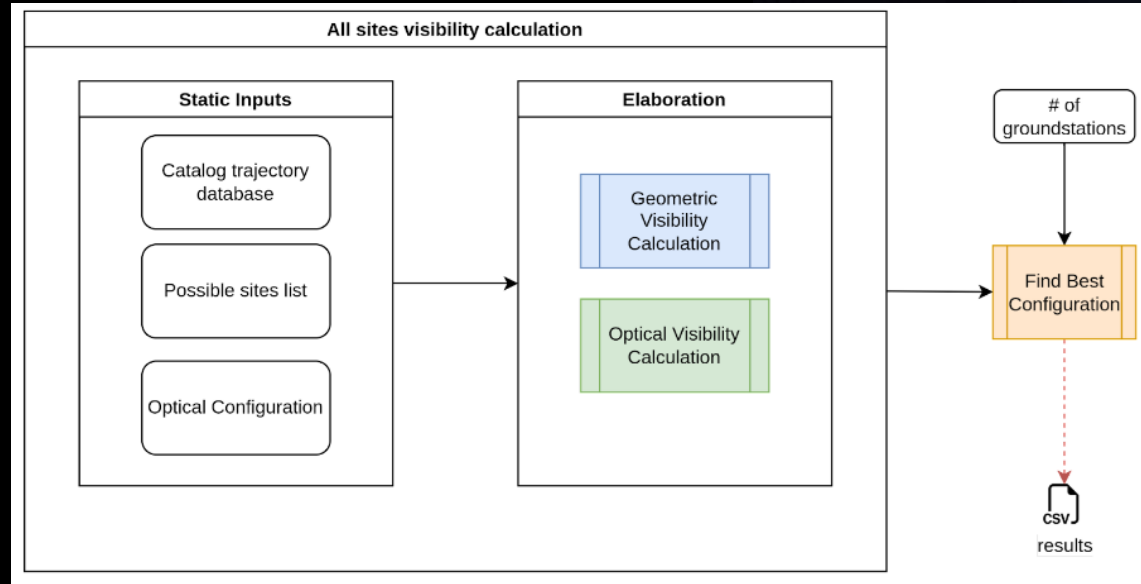
# Introduction

The space run till today has generated in the space environment:

- 670k objects with size over 1 cm
- 1 Million objects with size over 1 mm



# Algorithm Structure



# Configurations selected

## Config 1

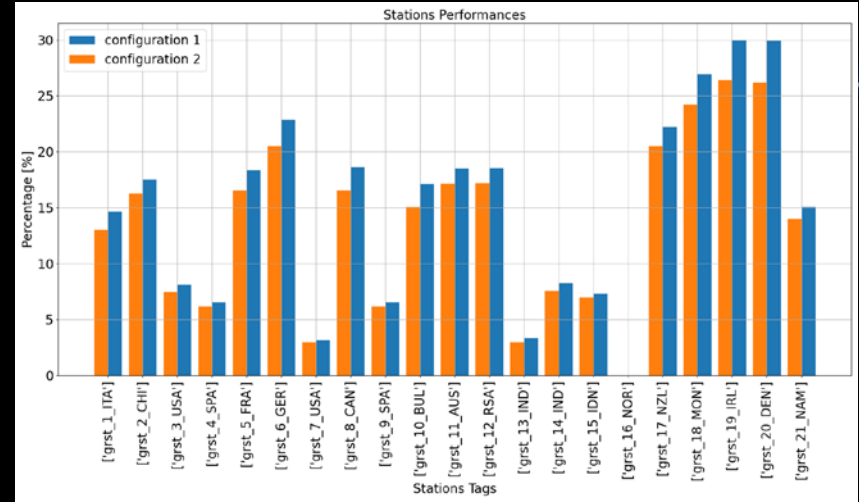
## Config 2

Primary Mirror Diameter [mm]	800	400
Focal length [mm]	3040	1520
Focal Ratio	3.8	3.8
Linear Obstruction [%]	55	55

Pixel Resolution	6144 x 6144	4096 x 4096
Pixel Size [ $\mu\text{m}$ ]	10	9
Read Out noise [e-]	4.2	3.7
Dark Current [e-/s] <sup>6</sup>	0.07	0.15
QE [%] <sup>7</sup>	~ 70	~ 70

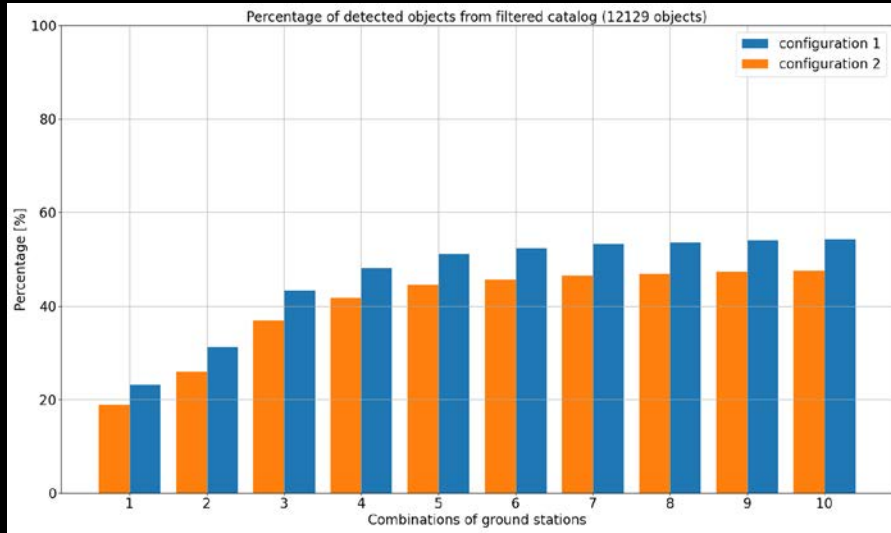


# Possible sites list

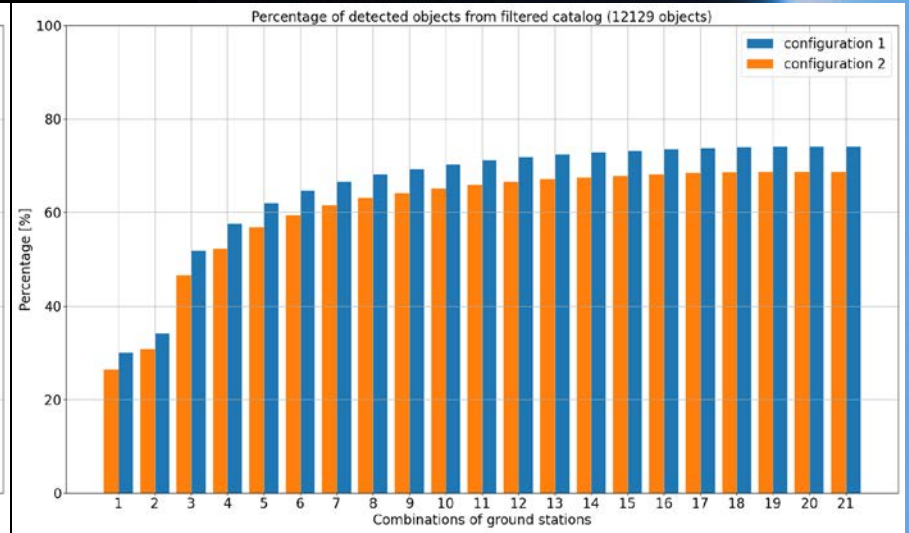


# Simulation Scenarios

## Scenario 1

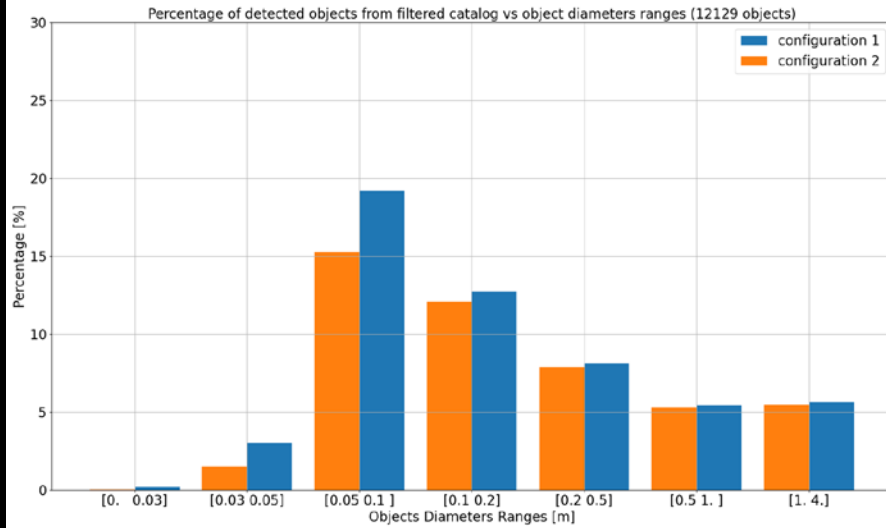


## Scenario 2

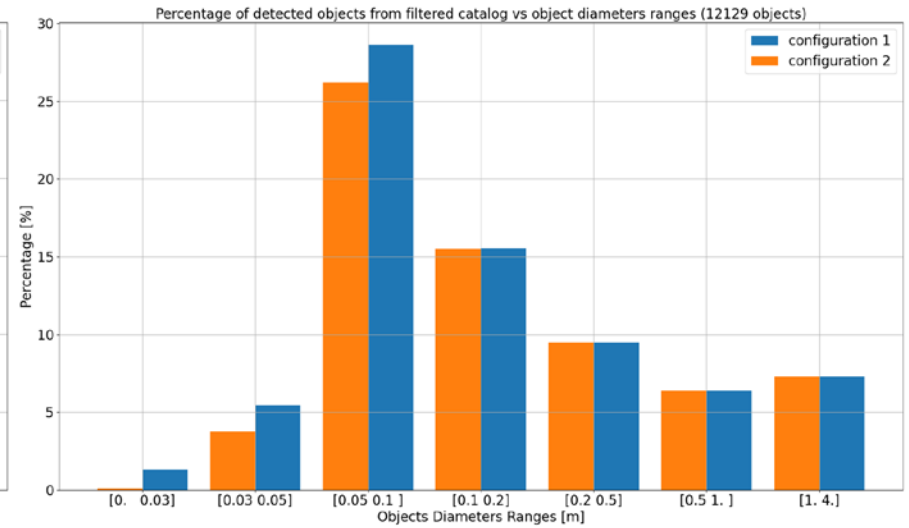


# Simulation Scenarios

## Scenario 1



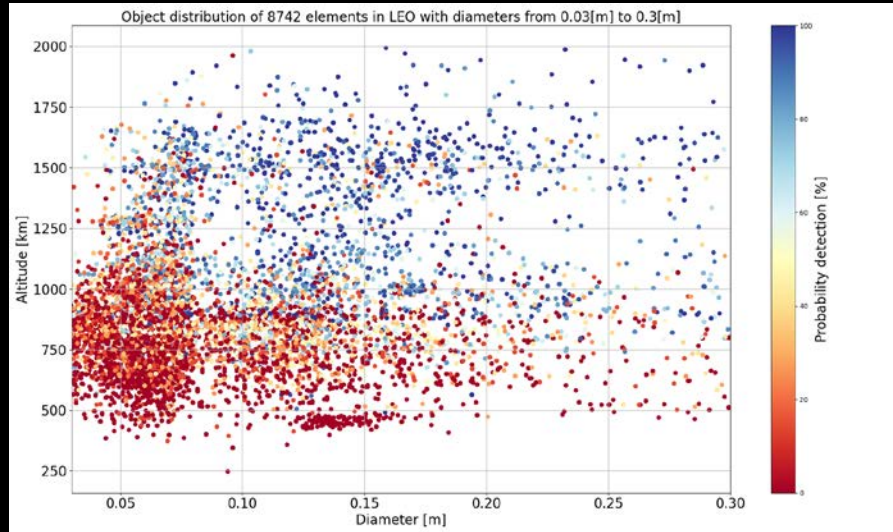
## Scenario 2



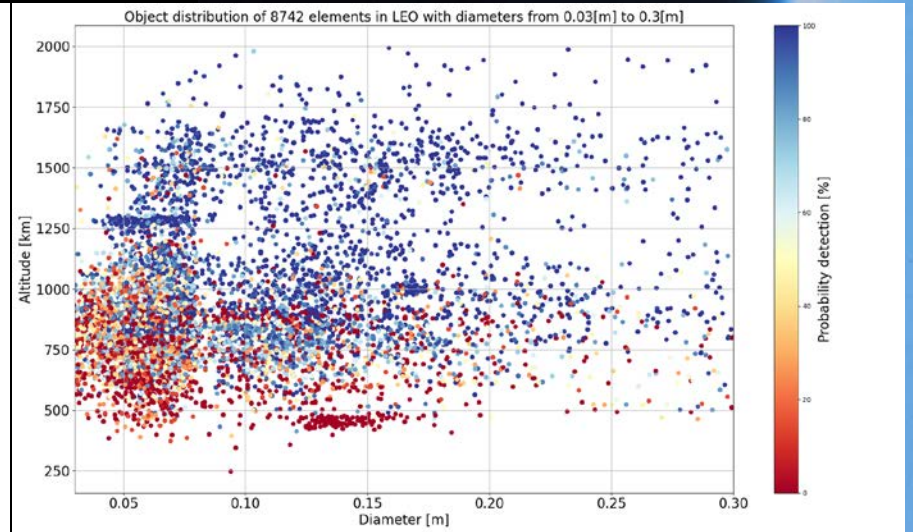


# Simulation Scenarios

## Scenario 1



## Scenario 2





# Conclusions

Practical rules to assure a good design of a global telescope optical network:

1. Spread the network all over the world if possible
2. Better places >> Many places
3. Big Telescopes to detect LEO is not always the best choice



# Thank you for your attention !

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