

# GAUSSIAN DISPERSION MODELS

AERMOD: [HANDS ON!!!]



UFES

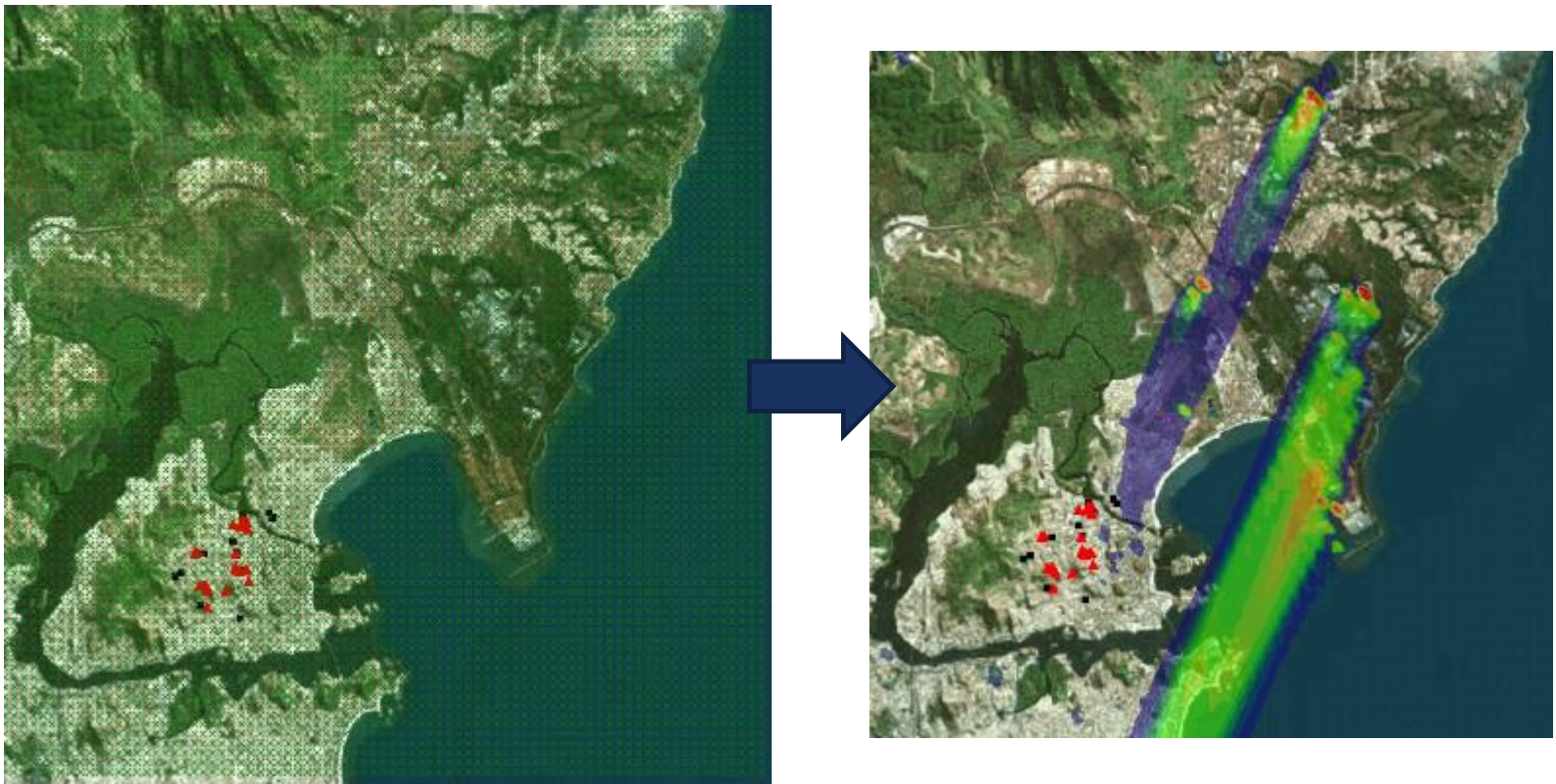
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Professora: Dra. Jane Meri Santos

# EXAMPLE OF MODELING DOMAIN

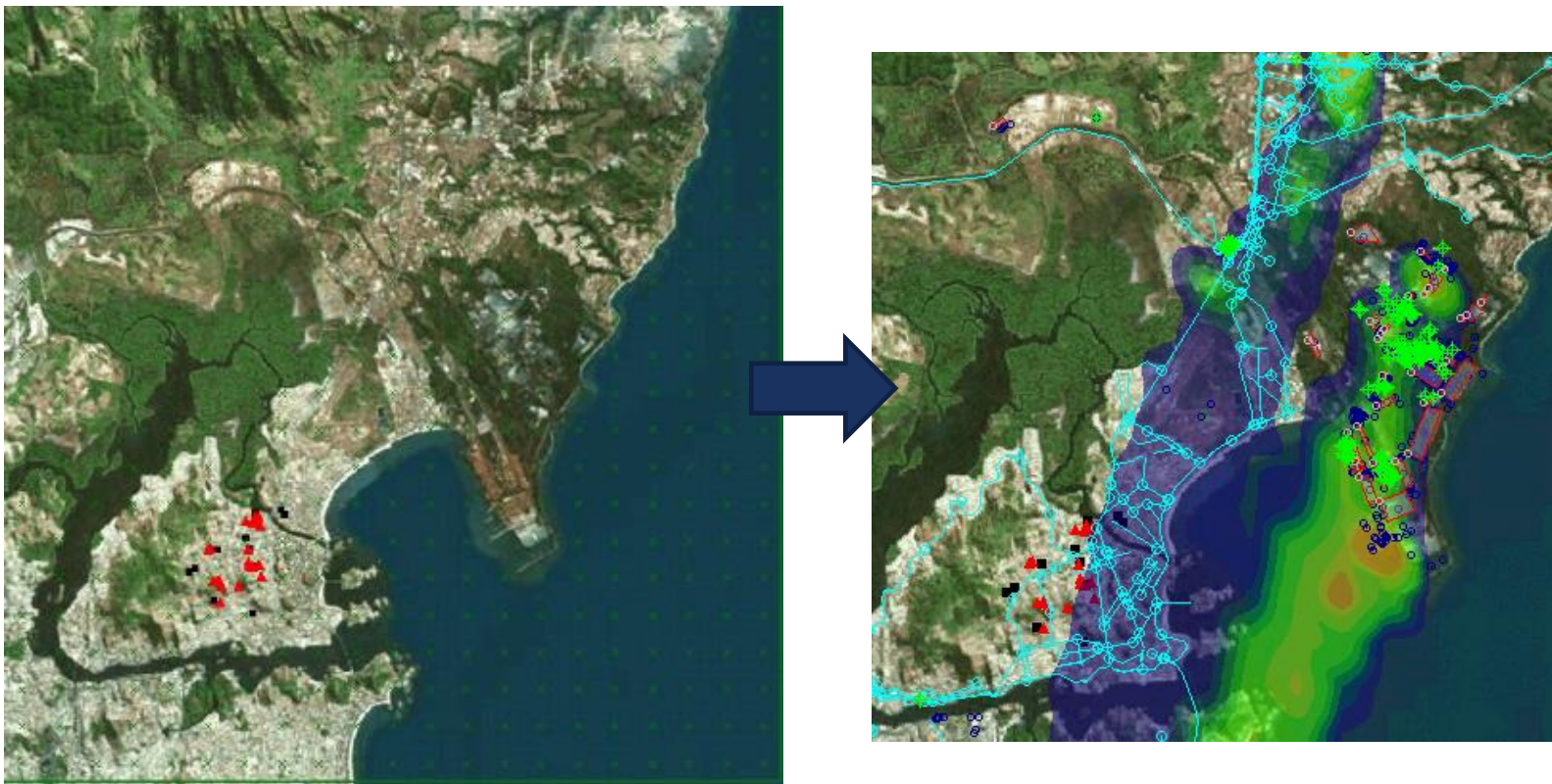


## EXAMPLE 2 – MODELING GRID



Domain: 21x21km Grid: 250x250m

## EXAMPLE 2 – MODELING GRID



Domain: 21x21km Grid: 1x1km

# EXAMPLE 3 – LAND USE

```
JOB
REPORT   EAS_2009_S3.RPT
MESSAGES EAS_2009_S3.MSG

METPREP
DATA     MERGE_2009.DSK
METHOD   REFLEVEL  SUBNWS
METHOD   WIND_DIR  RANDOM
NWS_HGT  WIND      10.0
METHOD   UASELECT  SUNRISE
OUTPUT   EAS_2009.SFC
PROFILE  EAS_2009.PEL
FREQ_SECT ANNUAL  4
SECTOR    1    30  195
SECTOR    2   195  270
SECTOR    3   270  360
SECTOR    4   360   30
**
SITE_CHAR 1 1    0.10  0.10  0.0001
SITE_CHAR 1 2    0.16  2.00  1.0000
SITE_CHAR 1 3    0.12  0.30  1.3000
SITE_CHAR 1 4    0.16  2.00  1.0000
```

this

Describes this: 4 sectors



# EXAMPLE 3 – LAND USE

## JOB

```
REPORT    EAS_2009_S3.RPT
MESSAGES  EAS_2009_S3.MSG
```

See Table 4-2 to 4-6 of AERMET User's guide for reference values of Albedo, Bowen and Roughness length

## METPREP

```
DATA      MERGE_2009.DSK
METHOD    REFLEVEL  SUBNWS
METHOD    WIND_DIR  RANDOM
NWS_HGT   WIND      10.0
METHOD    UASELECT  SUNRISE
OUTPUT    EAS_2009.SFC
PROFILE   EAS_2009.PFL
FREQ_SECT ANNUAL    4  Frequency command, frequency, number of sectors
SECTOR    1      30  195
SECTOR    2     195  270
SECTOR    3     270  360  Sector command, sector number, sector angles (0 is north)
SECTOR    4     360  30
```

*\*Sectors should not be smaller than 30 degrees and domain to extract land use info no longer than 3km from station.*

```
**      Seas Sect Alb    Bo    Zo
SITE_CHAR 1 1    0.10  0.10  0.0001
SITE_CHAR 1 2    0.16  2.00  1.0000  Sector characteristics, season (if annual = 1), sector, number,
SITE_CHAR 1 3    0.12  0.30  1.3000  Albedo, Bowen and Roughness length
SITE_CHAR 1 4    0.16  2.00  1.0000
```

So, if you have 5 sectors and 4 seasons, you will have 20 lines describing them

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# THANK YOU!



## Next:

### Feedback

- Any relevant feedback for my next presentations

### Questions

- Was something unclear?

### References

- AERMOD Model Formulation and Evaluation (US EPA)
- AERMET User's Guide (US EPA)

In case a question comes up later:

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