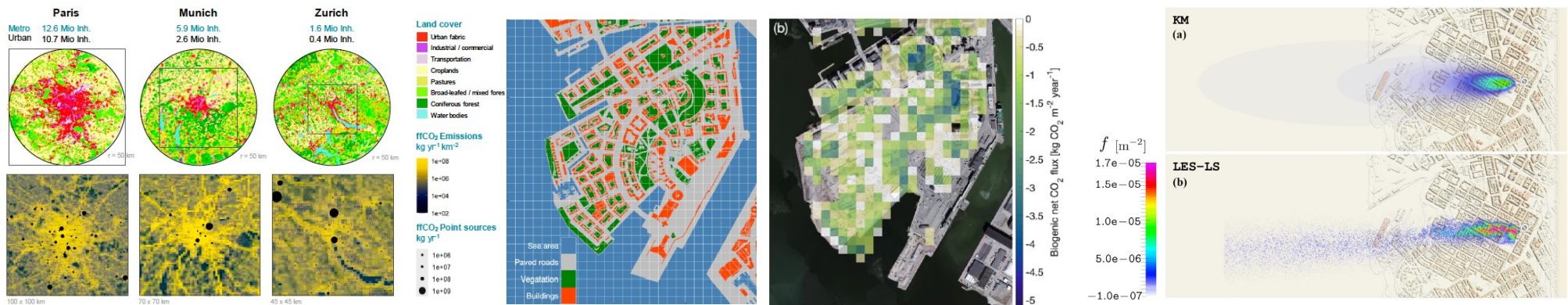# PAUL WP2 MODELLING

29 November 2021 | Leena Järvi & Thomas Lauvaux

Time schedule of today (16:30-18:00)

- Round of short introductions (name, affiliation, WP and tasks in PAUL)

- General description of WP2, time schedule and connections to other WPs (Leena&Thomas)

- Task descriptions (max 8 mins presentation, time for discussions after each)

WP2 goals

Provide novel carbon emission data products for stakeholders;

Examine the horizontal scales over of which each observation type for anthropogenic carbon emission is representative and their uncertainties;

Determine accuracy and precision of CO_2 emissions and urban vegetation fluxes at different spatial and temporal scales;

Develop high-resolution modelling systems (<100 m) suited for dense networks of mid- to low-cost technologies;
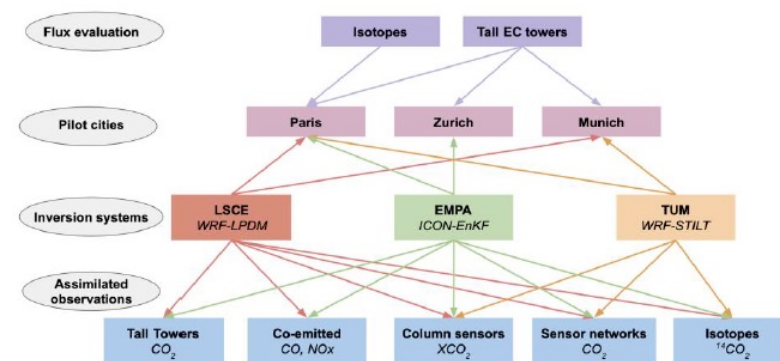
WP2 background

Lead: Leena Järvi (UH), Thomas Lauvaux (CEA)

Partners: TNO, ECMWF, EMPA, ULUND, TUM, UNIBAS, FMI, AIRPARIF

Work done in **five** tasks

- T2.1 Dynamic high-resolution emission modelling (Hugo/Ingrid, TNO)
- T2.2 Modelling of biogenic fluxes (Liisa, FMI)
- T2.3 Inverse mesoscale modelling (Thomas, CEA)
- T2.4 Building-resolving modelling for low-cost sensor assimilation (Dominik, EMPA)
- T2.5 Turbulent transport and footprint modelling for EC measurements (Natascha, ULUND)
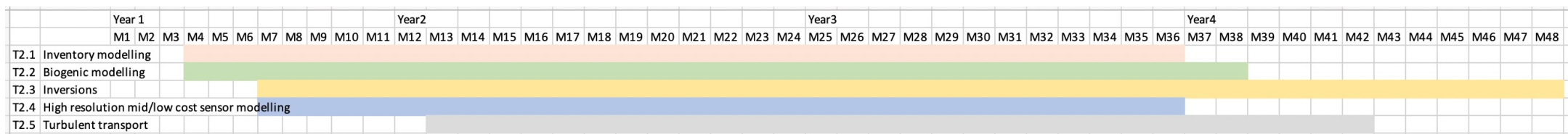
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WP2: Actions until end of 2022

Preparation of temporally varying city emission inventory for GHGs and co-emitted species for 2021 prepared by TNO (MS10, M12)

Surface data (3D city model including buildings, vegetation, etc) needed for different modelling setups in pilot cities (GRAMM/GRAL, PALM, footpriny and biogenic modelling, ...)

Action task: List of needed variables with resolution created in WP2 and sent to each city

Wind lidar location needs to match the needs of footprint and turbulence modelling

		Year 1												Year2												Year3												Year4											
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48
T2.1	Inventory modelling																																																
T2.2	Biogenic modelling																																																
T2.3	Inversions																																																
T2.4	High resolution mid/low cost sensor modelling																																																
T2.5	Turbulent transport																																																

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WP2: Connections to other WPs

WP1:

- 3D city models and emission data come from T1.1
- Two way interaction with service development in Task 1.4

WP3: All modelling is closely linked with certain observation technology

WP4: Model products generated in WP2 will be utilised in Data harmonisation and integration

WP5: T2.4 collaborates with T5.2 School co-operation bringing top science to the youth