

Overview and location of meteorological sensors aboard the aircraft of *MetAir*



2 temperature probes

3 humidity sensors:
- dew point mirror
- open path IRGA (LI-7500)
- closed IRGA (modified LI-6262)

Other state parameters:
- 5-hole-probe for air speed and flow angles;
- 3-axis accelerometers;
- position, ground speed AND ATTITUDE ANGLES (carrier phase detecting by "TANS Vector")
- height above ground (radar altimeter and/or digital terrain models when post-processing)

chemical sensors see separate images of the pods

Chemical measurements in the right-hand pod

PC/104 for data logging,
with wireless communication
to the cockpit

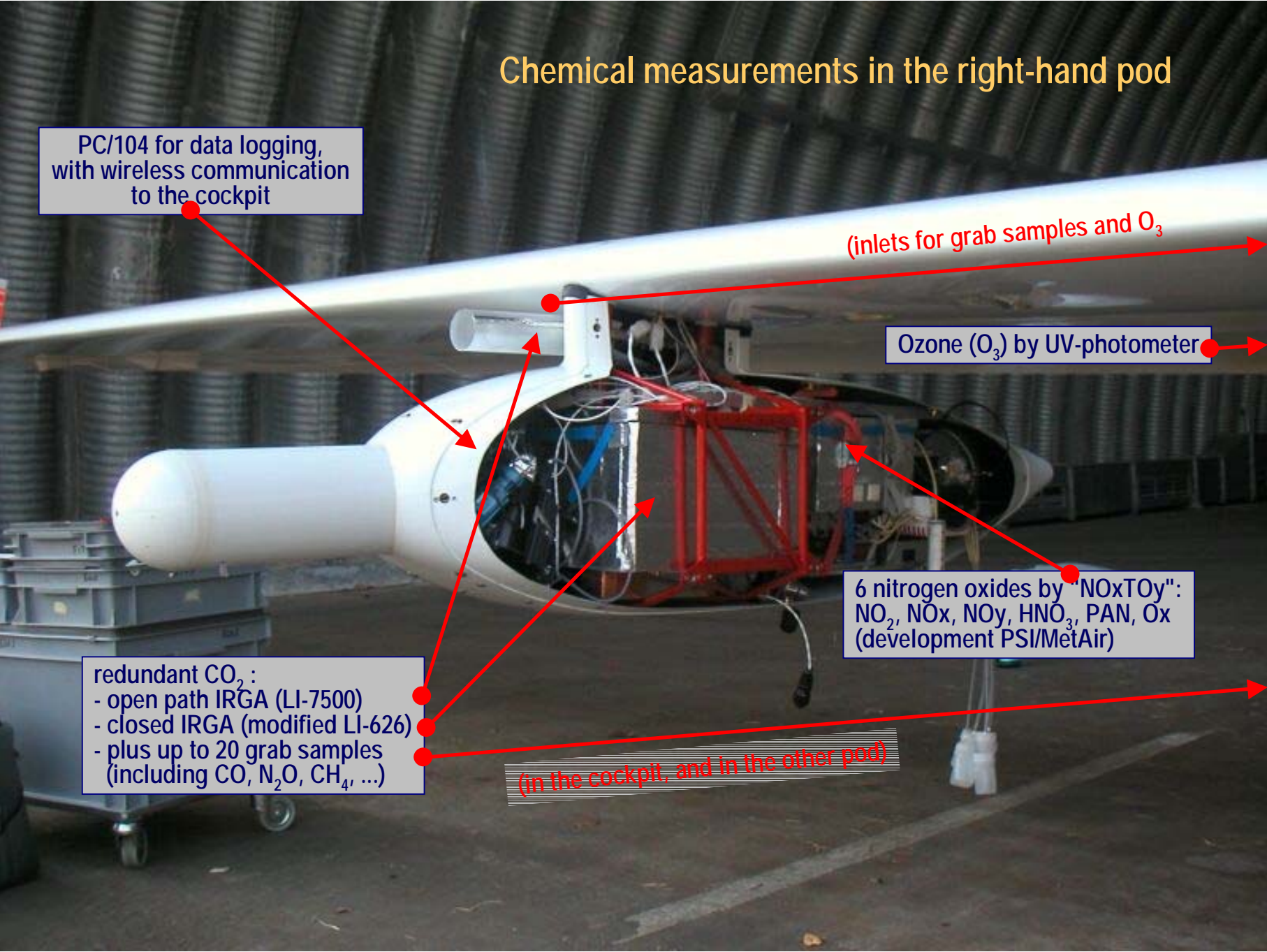
(inlets for grab samples and O₃)

Ozone (O₃) by UV-photometer

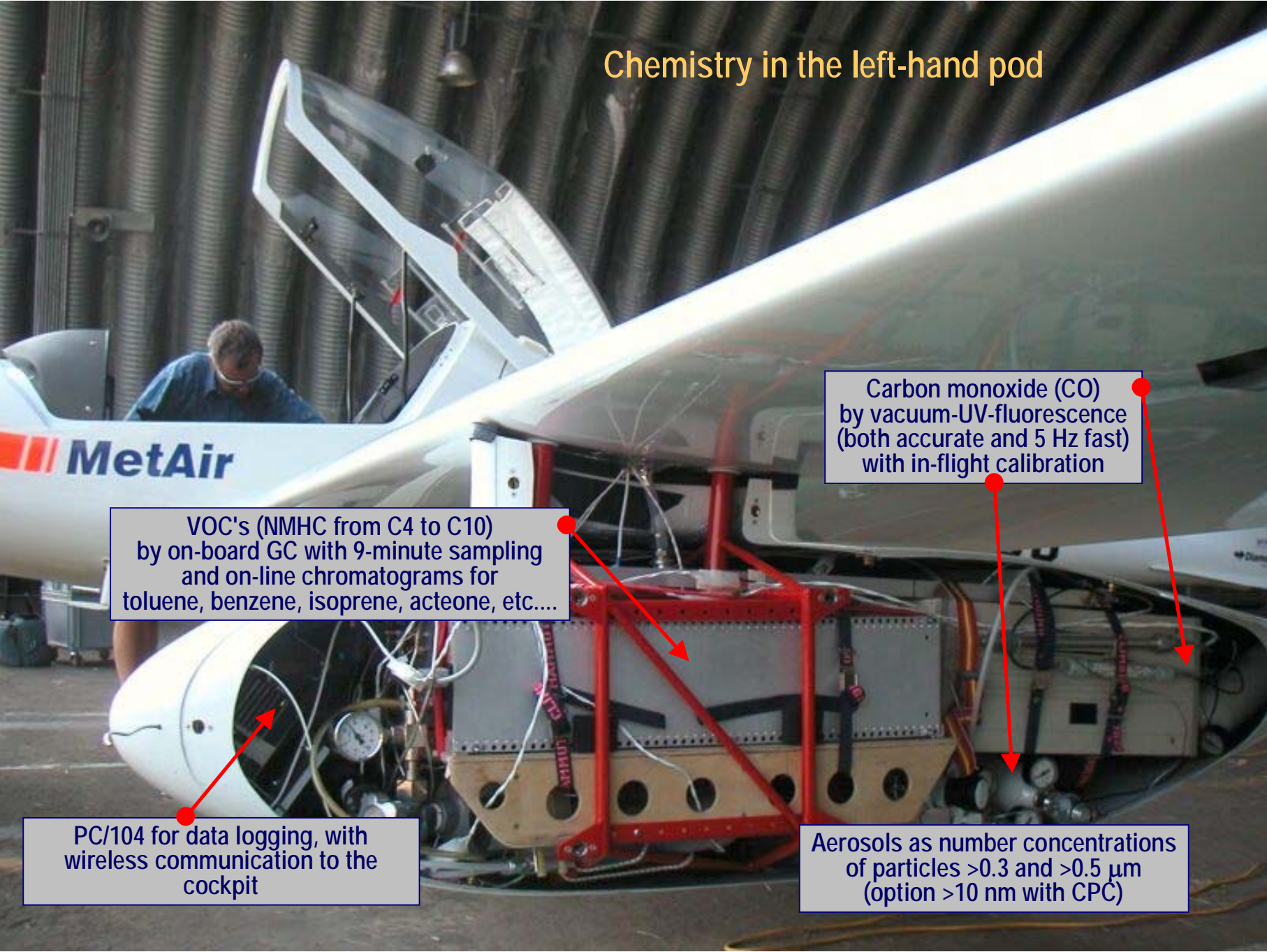
6 nitrogen oxides by "NOxTOy":
NO₂, NO_x, NO_y, HNO₃, PAN, Ox
(development PSI/MetAir)

redundant CO₂ :
- open path IRGA (LI-7500)
- closed IRGA (modified LI-626)
- plus up to 20 grab samples
(including CO, N₂O, CH₄, ...)

(in the cockpit, and in the other pod)



Chemistry in the left-hand pod



Carbon monoxide (CO)
by vacuum-UV-fluorescence
(both accurate and 5 Hz fast)
with in-flight calibration

VOC's (NMHC from C4 to C10)
by on-board GC with 9-minute sampling
and on-line chromatograms for
toluene, benzene, isoprene, acetone, etc....

PC/104 for data logging, with
wireless communication to the
cockpit

Aerosols as number concentrations
of particles >0.3 and $>0.5 \mu\text{m}$
(option $>10 \text{ nm}$ with CPC)