

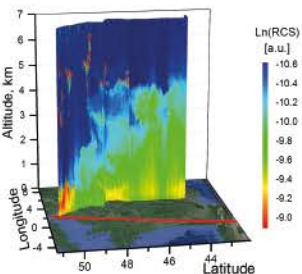
Atmospheric Aerosol LiDAR



Range of LiDAR

Meteorology & Climate Research / Aviation / Air Quality

CE376
CE370
CE710



CINEL

EXPLORE THE CLIMATE

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PRINCIPLE OF MEASUREMENT

Aerosol LiDAR Principle

LiDARs (**L**ight **D**etection **A**nd **R**anging) are optical remote sensing instruments with unique capabilities for atmospheric analysis. A pulse laser light emission (single or multiple wavelengths) is sent in the atmosphere. The light is scattered by the particles and part of it is backscattered to the LiDAR.

This collected signal is then measured as a function of time and distance.

The analysis of the signal can provide information on the spatial distribution of the aerosol in terms of extinction, backscatter coefficient, volume concentration, mass concentration and much more for complex instruments (temperature, size distribution, shape, refractive index, type of aerosol).

OUR RANGE OF LIDAR

Aerosol CE376 Micro-LiDAR

The CE376 is the last version of LiDAR technology. With the latest technological components, this instrument is considered as the best operational & accurate solution.

It operates in the visible (green) and/or in the near infrared NIR (red) with depolarization channels options for enhanced aerosol characterization.

The CE376 is the perfect solution to monitor industrial dust emissions, urban pollution, volcanic ashes, and all type of aerosol particles.



CE370 LiDAR

The CE370 LiDAR provides continuous & real-time operation with high performance measurements of aerosols and clouds including the vertical distribution with an extended range (up to 20 km).

It features a large aperture (200 mm diameter) for enhanced measurement up to high altitudes while ensuring full compliance with eye safety rules.

A second telescope can be added to extend the measuring range towards very low altitudes (from 50 m).

It can be operated in fixed mode (indoor or outdoor with enclosure) within an observation network, or during punctual campaigns (fixed or even on a mobile vehicle).



CE710 MACRO-LiDAR (GRAAL)

The CE710 is a **Ground-based Research Atmospheric & Aerosol LiDAR (GRAAL)**.

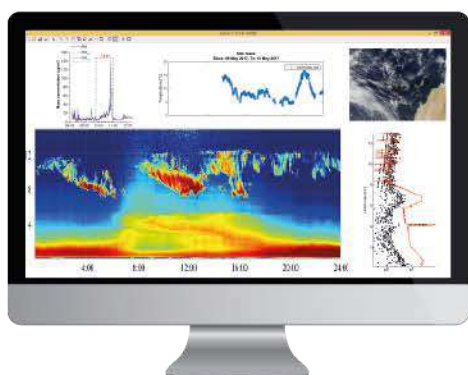
It is the first integrated LiDAR with a high power & multi-channel source.

It is composed of two parts:

- The first part is composed of a carbon telescope, with a 40 cm receiver diameter, a multi-wavelength laser, a beam expander (x5) and a receiver module (up to 9 channels): 355 - 1064 nm
- The second part is dedicated to all the acquisition unit (electronic cards, data treatment chain, monitoring software...)



OUR MONITORING SOFTWARE: iAAMS

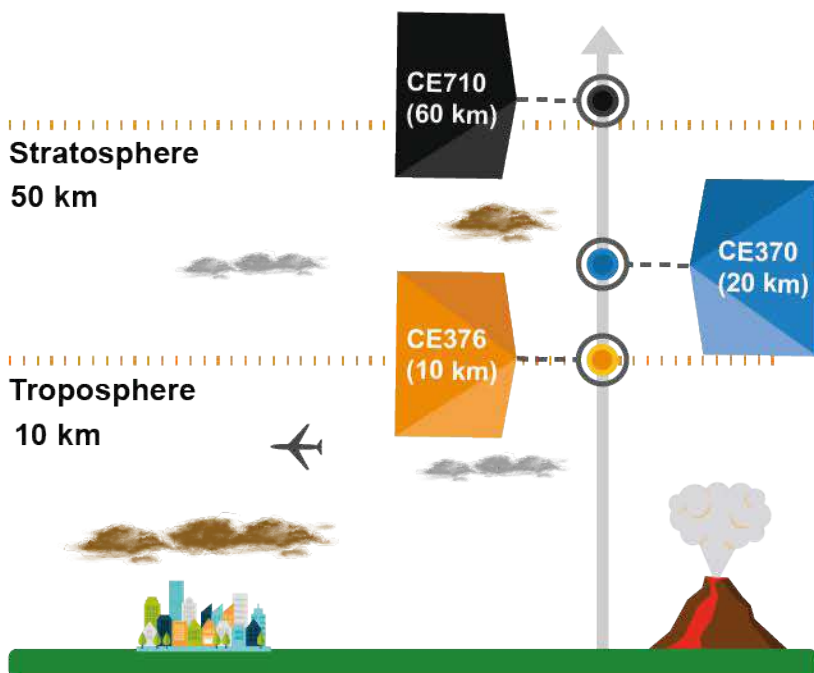


Integrated Automatic Aerosol Monitoring Software

- ✓ Compatible with CE376, CE370 LiDAR & CE318-T photometers
- ✓ Data exportation (NASA - AERONET compatible)
- ✓ Data processing through complex algorithms
- ✓ Dashboard & processing customization
- ✓ Unique & user-friendly interface

APPLICATION FIELDS

- Air quality:
 - Human pollution:
 - Urban monitoring
 - Industrial control
 - Natural events
 - Volcanic ashes
 - Sand / dust storm
 - Forest fire
- Climate change
- Airport flight operation
- Atmospheric sciences
- Aerosol & cloud modeling



FEATURES & BENEFITS

- Aerosol measurement up to the top of the stratosphere
- Automatic quantitative calibration by coupling with our CE318-T photometers
- Eye safety compliance with EN-60825/ANSI Z136 standard
- Easy transportation & suitable for mobile solutions
- Very short blind zone

Real time "quicklook" visualization

Automatic extinction & backscattering profiles

High stability and low maintenance

Aerosol characterization for each layer

PBL detection



Synergy with our **CE318-T** multispectral photometer



Cimel Electronique is a French manufacturer of meteorological and atmospheric observation systems for “climate - sensitive” activities

TECHNICAL PARAMETERS

PERFORMANCE	CE376	CE370	CE710
Range resolution	15 m gates	15 m gates	7,5 / 15 gates
Minimum range	100 m	50 m (SRL) - 150 m	100 - 500 m
Transportability	Yes	Yes	Yes
Detection range	Up to 10 km	Up to 20 km	Up to 60 km
Polarization	Yes	Not available	Yes
Scanning	Optional	Not available	Yes
OPTICS			
Laser wavelength	Green: 532 nm / NIR	532 nm	355 nm, 532 nm, 1064 nm
Laser pulse energy	5-10 / 3-5 μ J	10 -20 μ J (option 30 μ J)	100 mJ - 100 mJ -100 mJ
Eye-safety	Yes	Yes (except for 30 μ J option)	No
Receiver diameter	100 mm	200 mm	400 mm
Laser type	Green laser, frequency doubled Nd:YAG NIR laser: pulsed laser diode	Frequency doubled Nd:YAG	Nd:YAG laser
Detector	APD QE 55% / 70%	APD QE 55%	PNTs & APD (1064)
DIMENSIONS			
Size	650 x 450 x 710 mm	700 x 200 x 400 mm	Custom
Weight	25 kg	30 kg	> 200 kg
DATA			
Data acquisition mode	Photon counting (continuous)	Photon counting (continuous)	Analog & photon counting (glueing)
Data transfer	USB or Ethernet	USB	USB & RS232
ENVIRONMENT			
Temperature	-20°C to +45°C (with thermal enclosure)	-20°C to +45°C (thermal enclosure)	20 - 30°C (in lab)
Humidity	0 - 100% (with thermal enclosure)	0 - 100%	0 - 100%
POWER			
Supply	110/230 VAC & 28 VDC (automatic switching)	100/115/230 VAC	110/230 VAC
Consumption	< 300 W	< 100 W	> 1000 W

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