



Processi atmosferici su terreno complesso e a scala urbana

Dino Zardi

Università di Trento

Terreno complesso

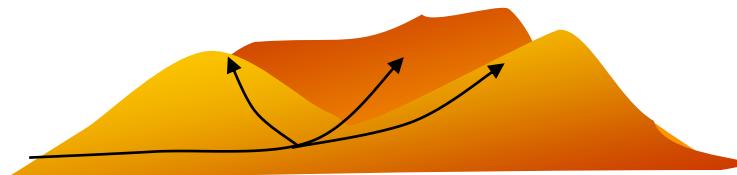


Daily-periodic thermally driven winds

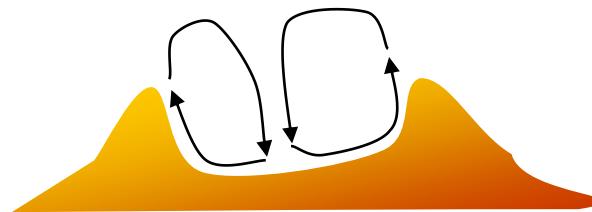
1. Slope winds



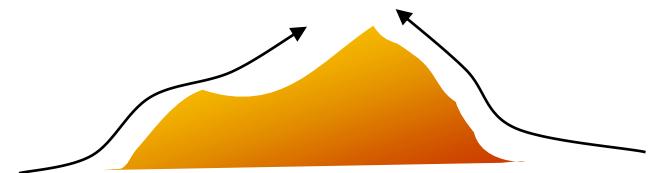
2. Valley winds



3. Basins/plateaus

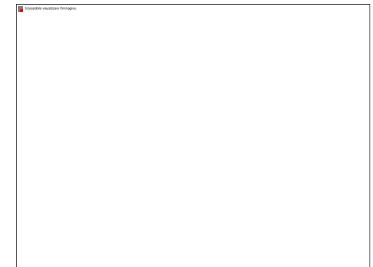


4. Mountain-plain circulations



Strumentazione

- ✓ 3 Stazioni meteorologiche
- ✓ 1 Sodar Scintec Mod. FAS64
- ✓ 2 Datalogger Datataker Mod. DT600
- ✓ 2 Barometri Vaisala Mod. PTB101B
- ✓ 2 Termoigrometri Rotronic
- ✓ 1 Anemometro Sonico
- ✓ 1 Igrometro IR open-path LiCor Mod. LI-7500
- ✓ n°1 Radiometro netto a 4 canali Kipp & Zonen
- ✓ n°1 Radiometro netto a 4 canali Hukseflux



Posizione: GPS

A bordo: antenna Tecom + receiver Ashtech Z12

A terra: antenna Tecom + receiver Ashtech Surveyor

Pressione: Barometro Vaisala PTB 101 B

Temperatura/U.R.: Termoigrometro Rotronic MP101A

Temperatura: PRT Hart Scientific Mod. 5627

Unità di acquisizione: Datalogger Datataker DT600

**Equipaggiamento
di base**

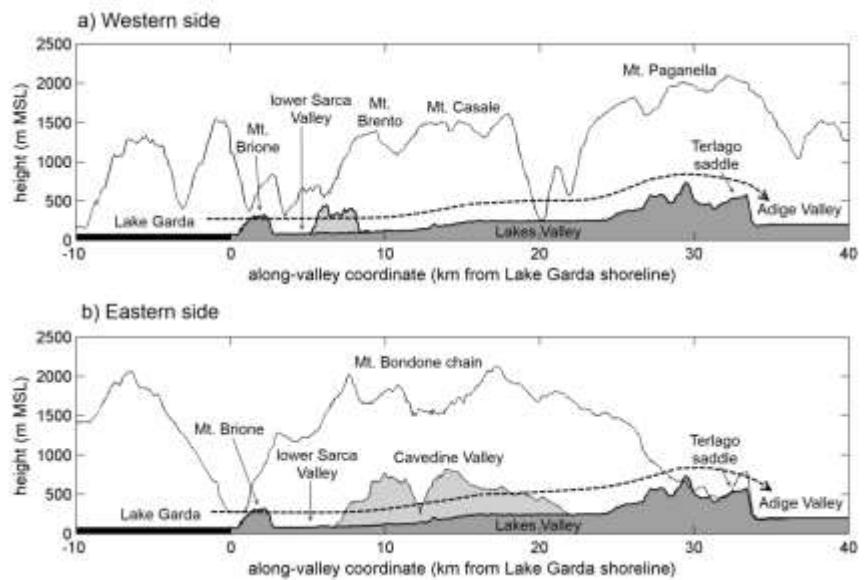
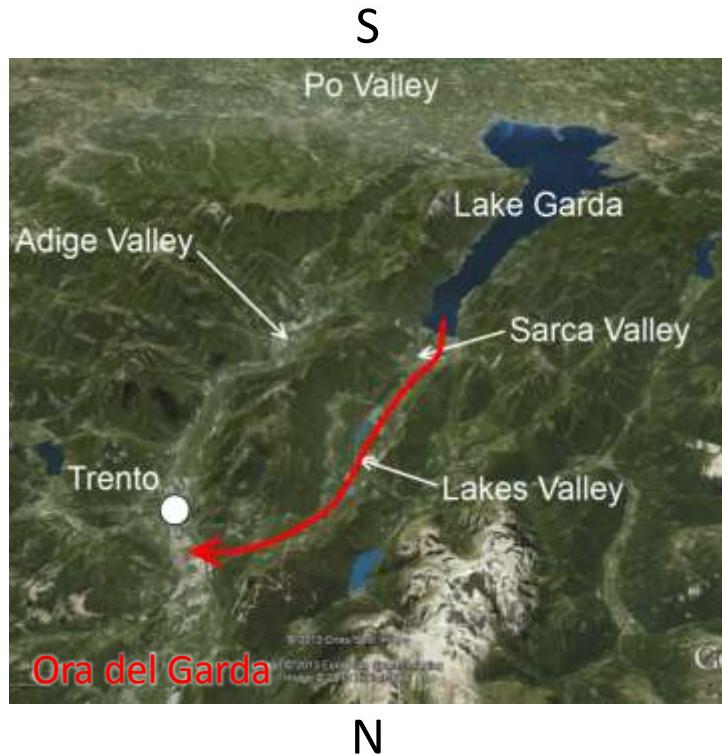


1. The Ora del Garda wind

Geographic setting

Southeastern Italian Alps

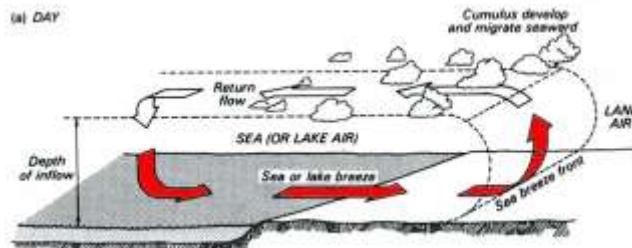
- Lake Garda
- Sarca and Lakes valleys
- junction with Adige Valley



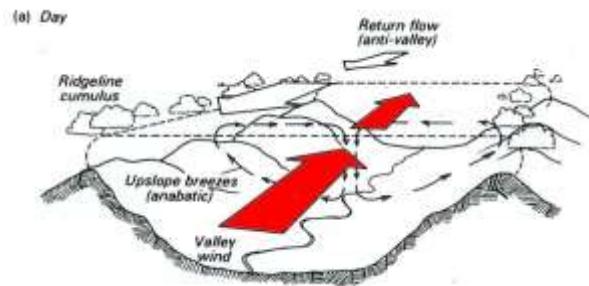
1. The Ora del Garda wind

Ora del Garda development

- Lake Garda: lake breeze



- Sarca and Lakes Valley: up-valley wind



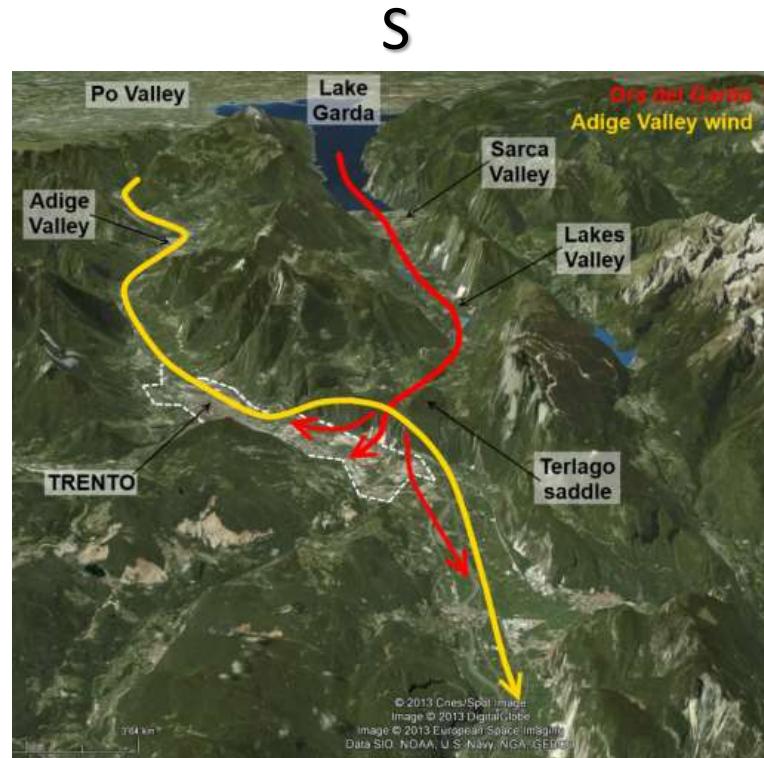
coupling: «extended» lake breeze

- farther inland penetration
- stronger intensity
- implications for air quality

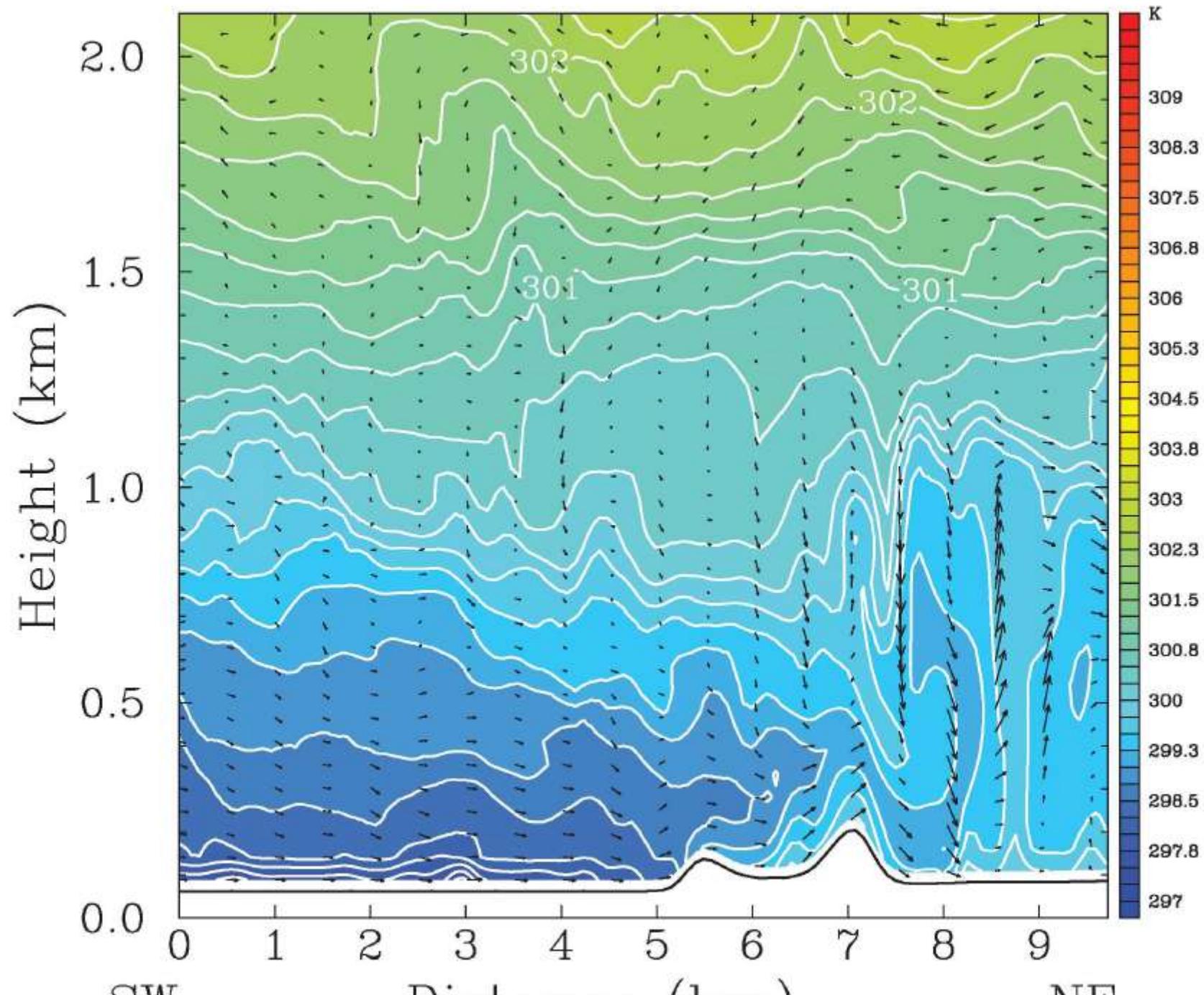
1. The *Ora del Garda* wind

Ora del Garda development

- Lakes Valley-Adige Valley junction: *Ora del Garda* overflow
→ anomalous interaction with local up-valley wind



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Residual kriging analysis of airborne measurements: application to the mapping of atmospheric boundary-layer thermal structures in a mountain valley

Lavinia Laiti,^{1,2*} Dino Zardi,^{1,2} Massimiliano de Franceschi^{1,2,3} and Gabriele Rampanelli^{1,2,4}

¹University of Trento, Department of Civil, Environmental and Mechanical Engineering, Atmospheric Physics Group, Trento, Italy

²National Consortium of Universities for Atmospheric and Hydrospheric Physics (CINFAI), Rome, Italy

³Diocese of Bolzano-Bressanone, Major Seminary, Bressanone, Italy

⁴Autonomous Province of Trento, Depurazione Agency, Trento, Italy

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Analysis of the diurnal development of a lake-valley circulation in the Alps based on airborne and surface measurements

L. Laiti^{1,2}, D. Zardi^{1,2}, M. de Franceschi^{1,2,3}, G. Rampanelli^{1,2,4}, and L. Giovannini^{1,2}

¹Atmospheric Physics Group – Department of Civil, Environmental and Mechanical Engineering – University of Trento, Trento, Italy

²CINFAI – National Consortium of Universities for Atmospheric and Hydrospheric Physics, Rome, Italy

³Diocese of Bolzano-Bressanone, Bressanone, Italy

⁴Depurazione Agency – Autonomous Province of Trento, Trento, Italy

*Correspondence to: L. Laiti (Lavinia.Laiti@unitn.it)

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Atmospheric boundary layer structures associated with the
Ora del Garda wind in the Alps as revealed from airborne
and surface measurements

Lavinia Laiti^{a,b,*}, Dino Zardi^{a,b}, Massimiliano de Franceschi^{a,b,c}, Gabriele Rampanelli^{a,b,d}

^aAtmospheric Physics Group, Department of Civil, Environmental and Mechanical Engineering, University of Trento, via Melano, 77, I-38123 Trento, Italy

^bNational Consortium of Universities for Atmospheric and Hydrospheric Physics (CINFAI), via Santa Maria, 37, I-00186 Roma, Italy

^cDiocese of Bolzano-Bressanone, Piazza Serzianino, 4, I-39042 Bressanone, Italy

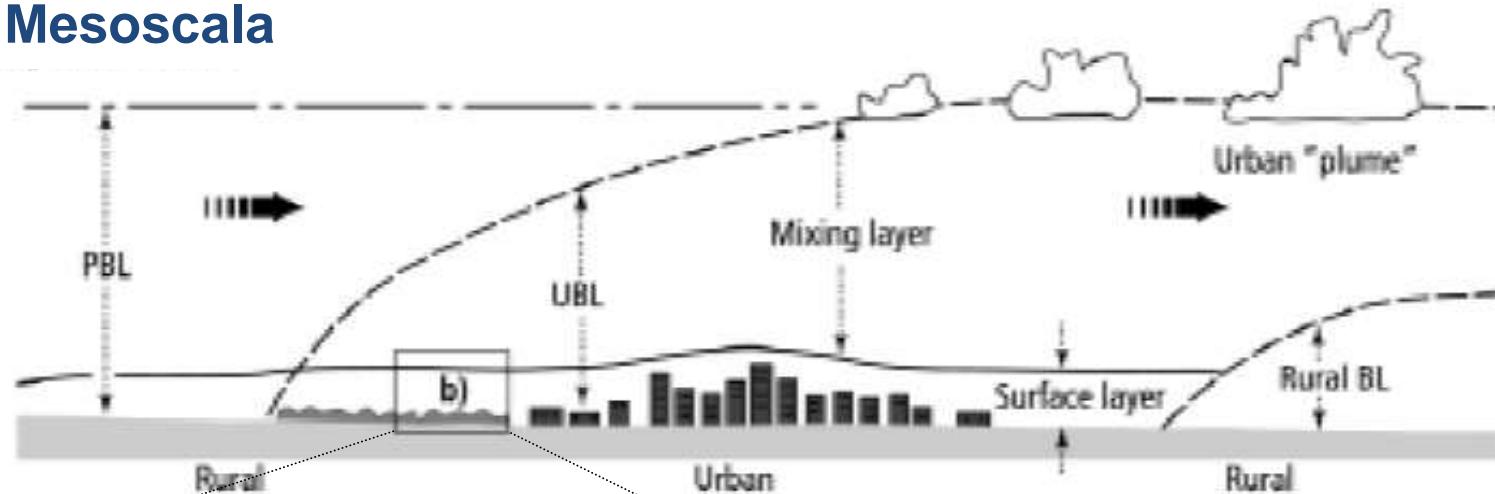
^dDepurazione Agency, Autonomous Province of Trento, Via Borgognone, 17/A, I-38100 Trento, Italy



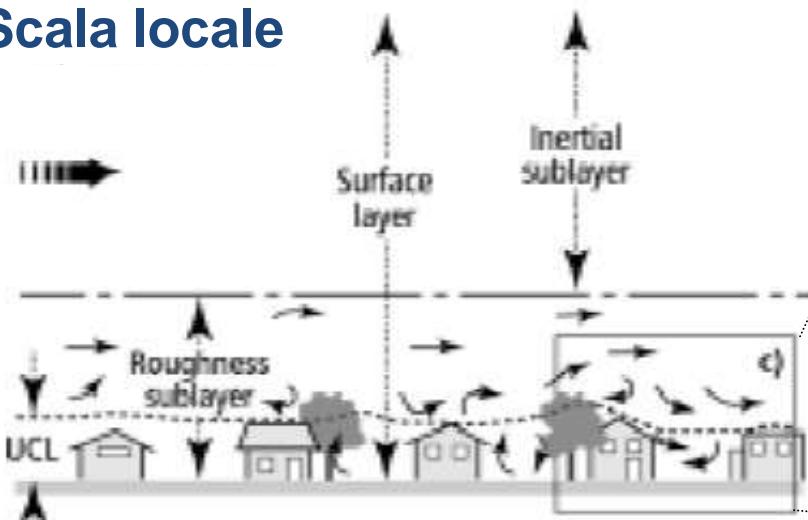
Processi in area urbana



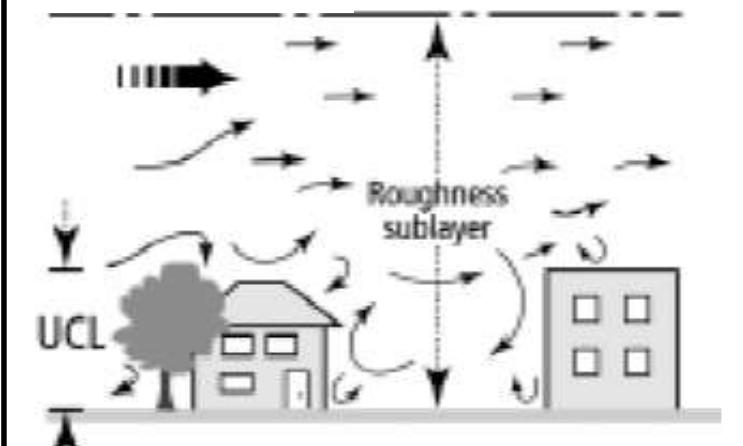
Mesoscala



Scala locale



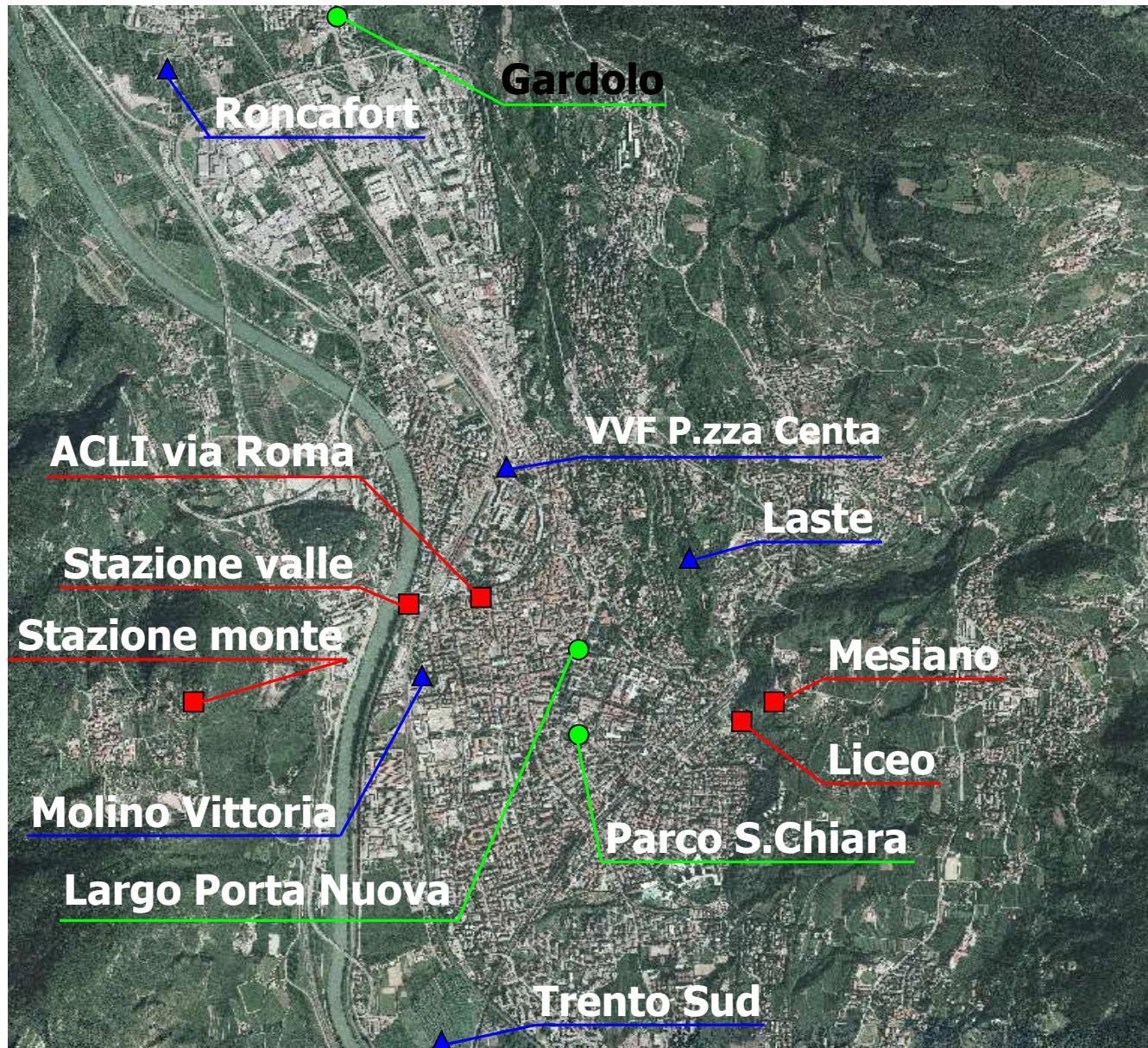
Microscala

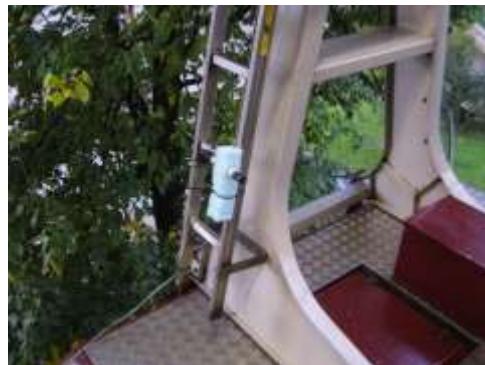


Osservatorio Meteorologico dell'Università di Trento al "Molino Vittoria"

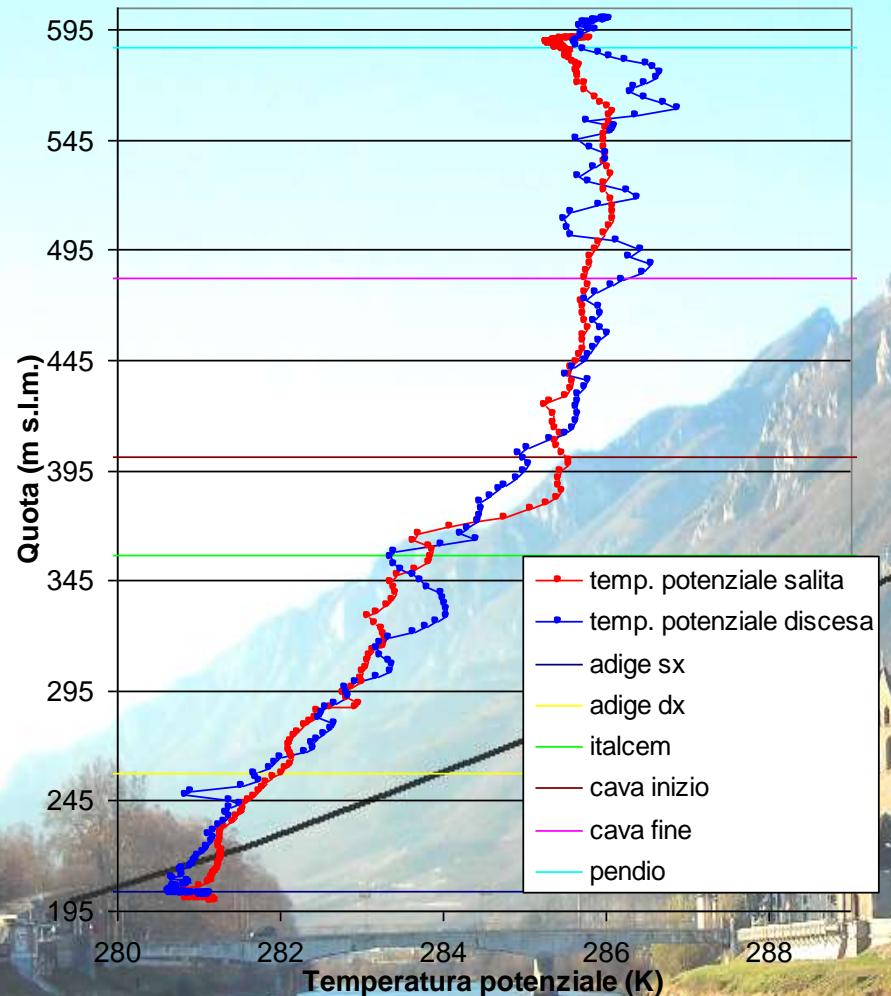


<http://www.ing.unitn.it/~prometeo/home.htm>

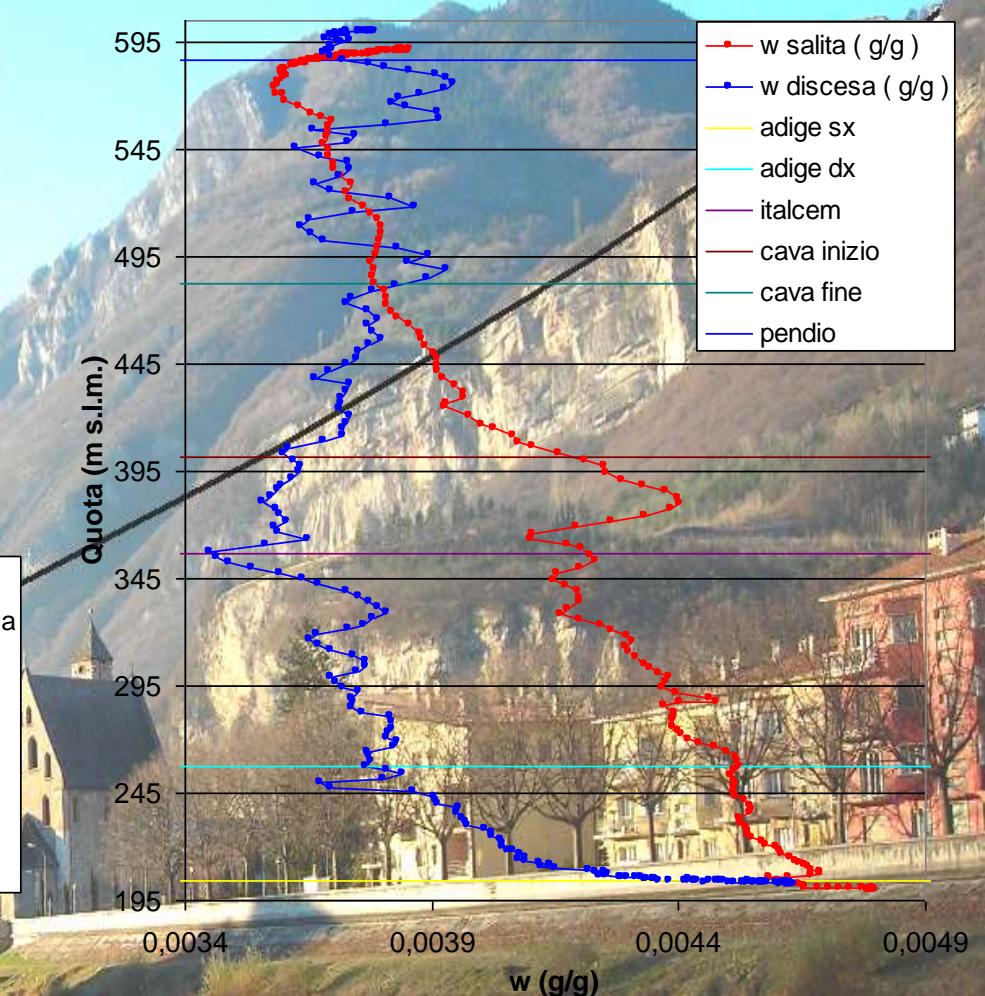




06 novembre: salita 17:15, discesa 17:30



Mixing ratio: salita 17:15, discesa 17:30



Misure in “canyon urbano”

Summer: 25 July – 20 August 2007

Winter: 21 December 2008 – 23 January 2009



Characterization of the Thermal Structure inside an Urban Canyon: Field Measurements and Validation of a Simple Model

LORENZO GIOVANNINI AND DINO ZARDI

Atmospheric Physics Group, Department of Civil, Environmental and Mechanical Engineering, University of Trento, Trento, and National Consortium of Universities for Atmospheric and Hydropheric Physics (CINFAI), Camerino, Italy

MASSIMILIANO DE FRANCESCHI

Atmospheric Physics Group, Department of Civil, Environmental and Mechanical Engineering, University of Trento, Trento, Major Seminary, Diocese of Bolzano-Bressanone, Bressanone, and National Consortium of Universities for Atmospheric

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Royal Meteorological Society

Numerical simulations of boundary-layer processes and urban-induced alterations in an Alpine valley

Lorenzo Giovannini,^{a,b,*} Dino Zardi,^{a,b} Massimiliano de Franceschi^{a,b,c} and Fei Chen^d

^a *Atmospheric Physics Group, Department of Civil, Environmental and Mechanical Engineering, University of Trento, Trento, Italy*

^b *National Consortium of Universities for Atmospheric and Hydropheric Physics (CINFAI), Rome, Italy*

^c *Major Seminary, Diocese of Bolzano-Bressanone, Bressanone, Italy*

^d *National Center for Atmospheric Research, Boulder, CO, USA*

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Analysis of the Urban Thermal Fingerprint of the City of Trento in the Alps

LORENZO GIOVANNINI AND DINO ZARDI

Atmospheric Physics Group, Department of Civil and Environmental Engineering, University of Trento, Trento, Italy

MASSIMILIANO DE FRANCESCHI

Atmospheric Physics Group, Department of Civil and Environmental Engineering, University of Trento, Trento, Italy, and Major Seminary, Diocese of Bolzano-Bressanone, Bressanone, Italy

Dispersione di inquinanti



