## Accepted Manuscript

Black carbon emission and transport mechanisms to the free troposphere at the La Paz/El Alto (Bolivia) metropolitan area based on the Day of Census (2012)

A. Wiedensohler, M. Andrade, K. Weinhold, T. Müller, W. Birmili, F. Velarde, I. Moreno, R. Forno, M.F. Sanchez, P. Laj, P. Ginot, D.N. Whiteman, R. Krejci, K. Sellegri, T. Reichler

PII: S1352-2310(18)30626-5

DOI: 10.1016/j.atmosenv.2018.09.032

Reference: AEA 16265

To appear in: Atmospheric Environment

Received Date: 30 October 2017

Revised Date: 13 September 2018

Accepted Date: 17 September 2018

Please cite this article as: Wiedensohler, A., Andrade, M., Weinhold, K., Müller, T., Birmili, W., Velarde, F., Moreno, I., Forno, R., Sanchez, M.F., Laj, P., Ginot, P., Whiteman, D.N., Krejci, R., Sellegri, K., Reichler, T., Black carbon emission and transport mechanisms to the free troposphere at the La Paz/El Alto (Bolivia) metropolitan area based on the Day of Census (2012), *Atmospheric Environment* (2018), doi: https://doi.org/10.1016/j.atmosenv.2018.09.032.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



## ACCEPTED MANUSCRIPT

1	Black Carbon Emission and Transport Mechanisms to the Free Troposphere at the La Paz/El
2	Alto (Bolivia) Metropolitan Area based on the Day of Census 2012
3	Wiedensohler <sup>1*</sup> , A., M. Andrade <sup>2,5</sup> , K. Weinhold <sup>1</sup> , T. Müller <sup>1</sup> , W. Birmili <sup>1</sup> , F. Velarde <sup>2</sup> , I. Moreno <sup>2</sup> , R.
4	Forno <sup>2</sup> , M.F. Sanchez <sup>2</sup> , P. Laj <sup>3,7,8</sup> , P. Ginot <sup>3</sup> , D.N. Whiteman <sup>4</sup> , R. Krejci <sup>6</sup> , K. Sellegri <sup>9</sup> , and T. Reichler <sup>10</sup>
5	
6	<sup>1</sup> Leibniz Institute for Tropospheric Research, Leipzig, Germany
7 8	<sup>2</sup> Laboratory for Atmospheric Physics, Institute for Physics Research, Universidad Mayor de San Andres, La Paz, Bolivia
9	<sup>3</sup> University Grenoble Alpes, CNRS, IRD, IGE, Grenoble, France
10	<sup>4</sup> NASA/Goddard Space Flight Center, Greenbelt, MD, USA
11	<sup>5</sup> Department of Atmospheric and Oceanic Sciences, University of Maryland, College Park, MD, USA
12 13	<sup>6</sup> Department Environmental Science and Analytical Chemistry (ACES), Atmospheric Science Unit, Stockholm University, Stockholm, Sweden
14	<sup>7</sup> Department of Physics, University of Helsinki, 0 0014 Helsinki, Finland
15 16	<sup>8</sup> Institute for Atmospheric Sciences and Climate of the National Research Council, (ISAC-CNR), Bologna, Italy
17 18	<sup>9</sup> Laboratoire de Météorologie Physique CNRS UMR 6016, Observatoire de Physique du Globe de Clermont-Ferrand, Université Blaise Pascal, 63171 Aubière, France
19	<sup>10</sup> Department of Atmospheric Sciences, University of Utah, Salt Lake City, UT 84112, USA
20	
21	*Corresponding author
22	
23	Abstract:
24	Urban development, growing industrialization, and increasing demand for mobility have led to
25	elevated levels of air pollution in many large cities in Latin America, where air quality standards and
26	WHO guidelines are frequently exceeded. The conurbation of the metropolitan area of La Paz/El Alto
27	is one of the fastest growing urban settlements in South America with the particularity of being
28	located in a very complex terrain at a high altitude. As many large cities or metropolitan areas, the
29	metropolitan area of La Paz/El Alto and the Altiplano region are facing air quality deterioration. Long-
30	term measurement data of the equivalent black carbon (eBC) mass concentrations and particle
31	number size distributions (PNSD) from the Global Atmosphere Watch Observatory Chacaltaya (CHC;
32	5240 m a.s.l., above sea level) indicated a systematic transport of particle matter from the
31 32 33	number size distributions (PNSD) from the Global Atmosphere Watch Observatory Chacaltaya (CHC; 5240 m a.s.l., above sea level) indicated a systematic transport of particle matter from the metropolitan area of La Paz/El Alto to this high altitude station and subsequently to the lower free

Download English Version:

https://daneshyari.com/en/article/10223595

Download Persian Version:

https://daneshyari.com/article/10223595

Daneshyari.com