

## **Experiments with the Teramobile Facility: A Mobile Terawatt Laser for Atmospheric Research**

Roland Sauerbrey<sup>1</sup>, Y.-B. André<sup>2</sup>, M. Franco<sup>2</sup>, J. Kasparian<sup>4</sup>, E. Salmon<sup>4</sup>, D. Mondelain<sup>4</sup>, A. Mysyrowicz<sup>2</sup>, B. Prade<sup>2</sup>, M. Rodriguez<sup>1</sup>, E. Salmon<sup>4</sup>, S. Tzortzakis<sup>2</sup>, R. Bourayou<sup>1</sup>, J.-P. Wolf<sup>4</sup>, L. Wöste<sup>3</sup>, J. Yu<sup>4</sup>

<sup>1</sup>Institut für Optik und Quantenelektronik, Friedrich-Schiller-Universität Jena, Max-Wien-Platz 1, 07743 Jena, Germany, Phone: +49 3641 947200, Fax:+49 3641 947202, e-mail: sauerbrey@ioq.uni-jena.de

<sup>2</sup>École Polytechnique - ENSTA, Laboratoire d'Optique Appliquée, Unité Inserm U-275, Batterie de l'Yvette, 91120 Palaiseau, France

<sup>3</sup>Freie Universität Berlin, Institut für Experimentalphysik, Arnimallee 14, 14195 Berlin, Germany

<sup>4</sup>Laboratoire de Spectrométrie Ionique et Moléculaire, Université Claude Bernard Lyon 1, 43, Bd du 11 Novembre 1918, 69622 Villeurbanne Cedex, France

### Abstract:

A mobile terawatt laser called “Teramobile” was constructed. This unique laser source is used to study the propagation of ultra-intense laser pulses in the earth atmosphere, including filamentation, and white-light generation. Experiments on the measurement of ozone profile using the ultra-violet part of the white-light spectrum are reported as well as the possibility to generate electric atmospheric discharges.