1016-78-88 **Stephanie Champeaux*** (stephanie.champeaux@cea.fr), CEA/DAM Ile de France, BP 12, 91680 Bruyeres-le-Chatel, France, and **Luc Berge**, **Stefan Skupin** and **Guillaume Mejean**.
Multifilamented femtosecond pulses propagation in the atmosphere.

In current atmospheric applications as Lidar remote sensing, the robustness of femtosecond (fs) filaments and their broad supercontinuum are used to penetrate turbid media and identify aerosol compounds. Fs laser pulses propagation is addressed within the framework of a (2+1) dimensional extended nonlinear Schrödinger equation which freezes temporal dependencies of the electric field, as it couples to a Drude model for the growth of free electrons. Influence of atmospheric aerosols on the filamentation patterns created by TW laser beams over 10 m propagation is investigated both numerically and experimentally. Dense fogs are observed to dissipate quasi-linearly the beam energy and diminish the number of filaments in proportion. Randomly distributed droplets are shown numerically to act as a linear dissipator of the wave envelope. Power per filament is evaluated to about 5 critical powers. The influence of pressure variation on the propagation of multifilamented beams is also explored. Weak pressures are shown to delay filamentation onset and modify the size and the number of filaments generated. (Received February 03, 2006)