



New results in polarimetry of planetary thermospheric emissions: Earth and jovian cases.

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Since the detection of polarization in the terrestrial oxygen red line (Lilensten et al. 2008) several campaigns of measurements have been performed at KHO (Svalbard, Norway) and at the polish polar station in Hornsund (Svalbard, Norway). These measurements confirm the existence of polarization. However since the last measurements at Hornsund are completely light unpolluted, we saw a polarization direction vertical, which is quite different from the direction in Lilensten et al. (2008). The polarization degrees are lower around 1.5%. These new measurements are completely coherent with new theoretical calculation (Bommier et al. 2011). From these results, we also can deduce that the polarization will be a proxy of the altitude of the emissions.

The jovian auroral emission also show polarization in the H3+ line at $3.95\mu\text{m}$ with degree up to 7%. This result is of great importance but for the moment it is impossible to interpret due to the lack of theoretical link between the polarization and the local fields. A circular polarization has also been detected but this have to be confirmed.

In a more general way, these results show that the polarization can be a source of information for the planetary upper atmospheres and that this quantity cannot be neglected in further upper atmospheres studies.