DYNAMIC EVOLUTION AND PHYSICAL PROPERTIES OF SIX NEAs
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INTRODUCTION
On average five favorable geometries per century for ground-based observation occurs for Near-Earth Asteroids (NEAs). The schedule of observations for these observational windows is crucial for the physical characterization of NEAs, in particular those accessible for spacecraft exploration. New spectroscopic observations of NEAs were acquired using SpeX/IRTF instrument. These objects were observed in the 0.8-2.5 micron spectral range for the first time: (10302) 1989ML, (144411) 2004EW9, (214869) 2007PA8, (276397) 2002XA40, (329338) 2001JW2, and (330825) 2008XE3. These objects belong to the Minor Planet Center Critical list of numbered objects. Moreover, (214869) 2007PA8 is a Potential Hazardous Asteroid (PHA). Their spectra and mineralogical models derived from the observational data of these objects will be presented. The interpretation will be placed in the context of their dynamical evolution.

Data reduction was performed using both spextool (Cushing et al, 2004), and autopex (Rivkin et al 2004). The weather condition were relatively good, the humidity spanning the range 20-75%.

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The observations were performed using SpeX/IRTF in the low resolution Prism mode, in remote observing mode, from AIRA Bucharest, Romania, and Paris Observatory, France. The spectral interval is 0.8-2.5 µm.

SPECTRAL ANALYSIS & DYNAMICS

The analysis of spectra was done using the on-line tool M4AST contains a compiled database and a set of routines devoted to spectral analysis of asteroids (Popescu et al, 2012). The routines can classify new spectra with respect several taxonomic systems, find the best fit of spectra with laboratory measurements using a battery of tests, models the space weathering effects, computes band centers and Band Area Ratio (BAR) of telescopic data.

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CONCLUSIONS: Six low DeltaV NEAs are presented. Spectroscopic survey of NEAs will increase the database of physical properties and knowledge on NEAs in particular for specific programs/purposes namely i)enlarging the sample concerning the mitigation (e.g. NESOShield program) and ii) finding targets with interesting dynamics and physical properties for future space missions. The asteroid (10302) 1989ML is one of the most accessible low-DeltaV NEA, and its spectral properties in NIR are presented for the first time. The asteroid (144411) 2004EW9 presents a spectrum similar to primitive meteorites and could be a good candidate for investigation by space missions. The asteroid (214869) 2007PA8 presents also an interesting spectral trend which is related to the rare L end-members taxonomic class into Bus-DeMeo taxonomy (DeMeo et al Icarus, 2009). Backward numerical integration highlighted a possible association with JFC.

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