

HYPERSENSITIVE (HSR) ACTIVITY IN ISRAEL: FROM POINT TO SPATIAL  
SPECTROSCOPY IN ALL DOMAINS

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In Israel the interest in HSR technology began in 1989 when the airborne GER 63 scanner first was introduced into the country by Prof. Kaufman (now head of the GFZ remote sensing section, and a science leader on the EnMAP mission), who realized that the southern part of the country consists of remarkable mineralogy and geology exposed at a very short distance. In 1997 the DAIS-7915 sensor was brought to Israel as part of the FP3 program led by the DLR and it covered more areas. From these two missions, 10 refereed papers were published in collaboration with leading scientists and experts in this technology. The education activity in HSR technology began in 1994 at Tel Aviv University, and since then, 21 graduate and PhD students have submitted their theses in that field and were absorbed either by academia or by industry both nationally and internationally. Parallel to these educational and processing activities, practical applications in soil science, urban studies, atmosphere and vegetation were developed at the TAU RSL laboratory to form a foundation for any HSR data to come. Since 1999 the CASI sensor has acquired data over several locations in Israel and the first paper on urban applications using the HSR technology was published in 2000. In 2002, the AISA-ES sensor was purchased by the government of Israel in order to examine the HSR capability and to serve as a promoter of possible activity from this technology. From 2001-2008, based on the massive investment by governmental bodies, more users and bodies in Israel have entered this field in both industry and academia. In 2007, the Ministry of Science selected the remote sensing laboratory at (RSL) Tel Aviv University (TAU) to lead a joint group that will disseminate the HSR technology nationwide. On that basis, a center of excellence in HSR technology has been established and has conducted several campaigns in both laboratory and field point spectroscopy along with field and airborne image spectroscopy. The group was aided by statistics of the infrastructure (either point and image for both ground and air domains) and completed researches in precise agriculture, soil degradation, data processing and urban and water monitoring. In March 2009 the group I organized the 6<sup>th</sup> EARSEL SIG IS workshop that had significant success; more than 200 scientists as well as national and international experts in this field participated in this important event. A field trip to Makhtesh Ramon, which was suggested as a calibration site for the HSR sensor, was visited by the participants and an overpass of the Norwegian HSR sensor HyperSPEX was conducted simultaneously with ground measurements of several ASDs. The future of HSR technology in Israel lies in more theoretical development (algorithms, data compression, chemical models), practical applications (environmental mapping of the atmosphere and soil degradation) and electro optical development (better and high SNR HSR sensors). Today this technology has found its way to all domains starting from orbit, field, and laboratory either by using point or imaging sets of data.

*Invited for a special session on hyperspectral remote sensing chaired by Andreas Muller*