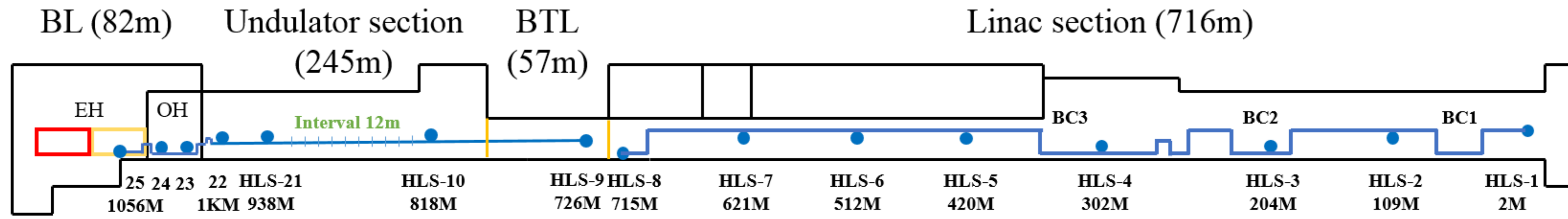


# HLS to measure changes in Real-time in the Ground and Building floor of PAL-XFEL, Large-scale Scientific Equipment

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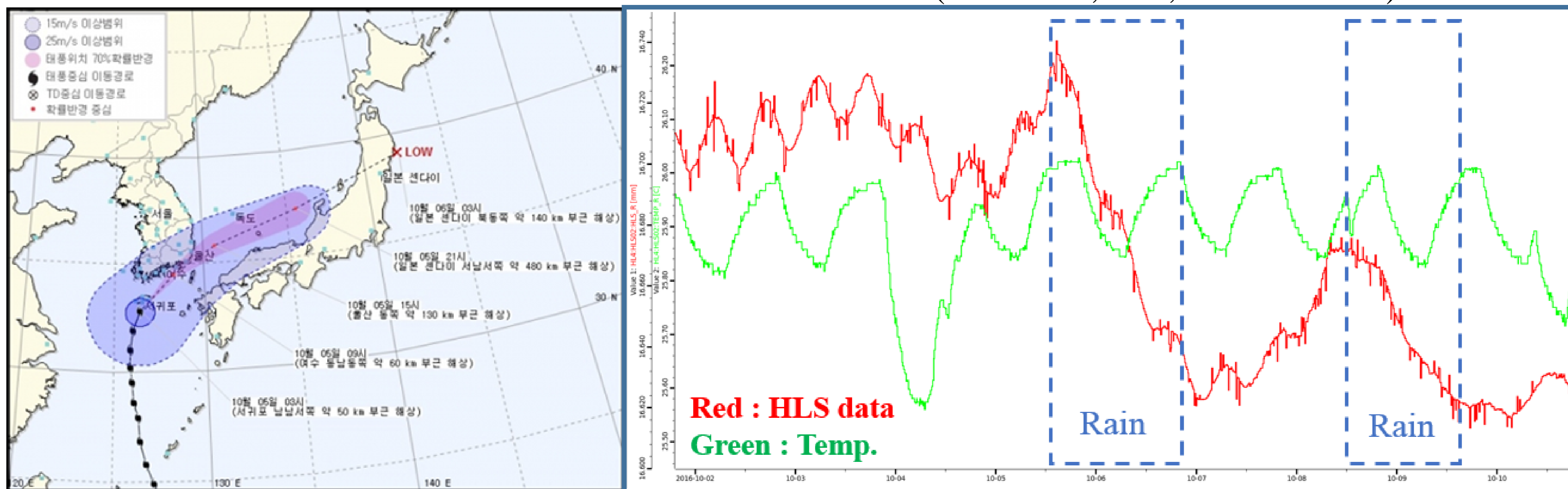
PAL-XFEL has installed the Hydrostatic Levelling System (HLS) to measure and record the vertical change of buildings and ground consistently and systematically. This introduces the installation and operation status of HLS.



## Linac Section

## Undulator and Beamline Section

## HLS data (tide wave, rain, and vibration)



Observation of ground motion due to typhoon storm @ 5 Oct. 2016

## Flow measurements in Linac section (HLS value axis scales are not same)

