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Interplanetary coronal mass ejections (ICMEs) from small to large-scales during the recent low solar activity period

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e give an overview of ICMEs and small/weak ICME-like structures during 2007-2010 identified using observations from the near-Earth and STEREO
spacecraft. Low interplanetary magnetic field strength during this time period allowed us to identify weak and small solar wind structures. The number of ICME-like structures peaked near solar minimum, while the number of ICMEs increased in the early rising phase of cycle 24. We observed a gradual transition from ICME-like structures to ICMEs: The studied events display continuous distributions in duration and magnetic field magnitude ranging from a few hours to several days and from a few nanoteslas to a few tens of nanoteslas, respectively. However, our analysis of the background solar wind suggests that they originate (at least partly) from different solar regions. We found that ICME-like transients generally occur closer to slow-fast stream interaction regions than ICMEs implying that they tend to arise close to coronal hole boundaries and thus may have an important role in coronal hole dynamics. Comparison of the narrow CME rate and the small ICME-like structure rate indicates that the majority of narrow CMEs have merged as a part of the solar wind while they are moving out to 1 AU.