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Sommario/riassunto	Plants have been exposed to multiple environmental stressors on long-term (seasonal) and short-term (daily) basis since their appearance on land. However, the frequency and the intensity of stress events have increased much during the last three decades because of climate change. Plants have developed, however, a multiplicity of modular and highly integrated strategies to cope with challenges imposed by novel, usually harsher environments. These strategies include migration, acclimation and adaptation. Twelve articles in this research topic exactly focus on the relative significance of these response mechanisms for the successful acclimation of plants to a wide range of novel environmental pressures. Four articles , additionally, explore how plants respond to severe stress conditions resulting from the concurrent action of multiple stressors. Ten articles mostly examine how morpho-anatomical, physiological and biochemical-related traits integrate when plants suffer from 'novel' threats, such as solid, gaseous, and electromagnetic pollutants. Suitable physiological indicators for developing conservation strategies are described in the last two works. This research topic highlights that bottom-up, as well as, top-down approaches will be necessary to develop in near future in the study of plants´ responses to environmental pressures.