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Sommario/riassunto	In the Earth sciences, a transition is currently occurring in multiple fields towards an integrated Earth system approach, with applications including numerical weather prediction, hydrological forecasting, climate impact studies, ocean dynamics estimation and monitoring, and carbon cycle monitoring. These approaches rely on coupled modeling techniques using Earth system models that account for an increased level of complexity of the processes and interactions between atmosphere, ocean, sea ice, and terrestrial surfaces. A crucial component of Earth system approaches is the development of coupled data assimilation of satellite observations to ensure consistent initialization at the interface between the different subsystems. Going towards strongly coupled data assimilation involving all Earth system components is a subject of active research. A lot of progress is being made in the ocean–atmosphere domain, but also over land. As atmospheric models now tend to address subkilometric scales, assimilating high spatial resolution satellite data in the land surface models used in atmospheric models is critical. This evolution is also challenging for hydrological modeling. This book gathers papers reporting research on various aspects of coupled data assimilation in Earth system models. It includes contributions presenting recent progress in ocean–atmosphere, land–atmosphere, and soil–vegetation data assimilation.