

NASA recommends the licensee ensure a robust conjunction assessment practice is in place to share ephemeris with other operators, communicate regarding maneuvers and potential conjunctions, and proactively coordinate conjunction mitigation. In December 2020, NASA released the NASA Spacecraft Conjunction Assessment and Collision Avoidance Best Practices Handbook (https://nodis3.gsfc.nasa.gov/OCE_docs/OCE_50.pdf). The handbook addresses a wide variety of topics related to effective and mature conjunction assessment practices in support of a safe space environment for all operators. Space operators can use the handbook to benchmark their existing practice, or in support of establishing an effective conjunction assessment capability. NASA also encourages operators to share suggestions about the handbook contents with NASA, and future handbook updates will improve and expand coverage on emerging topics.

NASA notes three areas of emerging concern. More objects in similar orbits naturally leads to increased opportunity for conjunctions. Maneuverable spacecraft improve the opportunity space for conjunction mitigation, leading to a higher aggregate rate of maneuvers and temporarily invalid orbit propagations used by other operators. Autonomous on-board navigation improves efficiency of operations, particularly at scale, and leads to the potential for independent autonomous systems to coincidentally select a dangerous combination of mitigations.