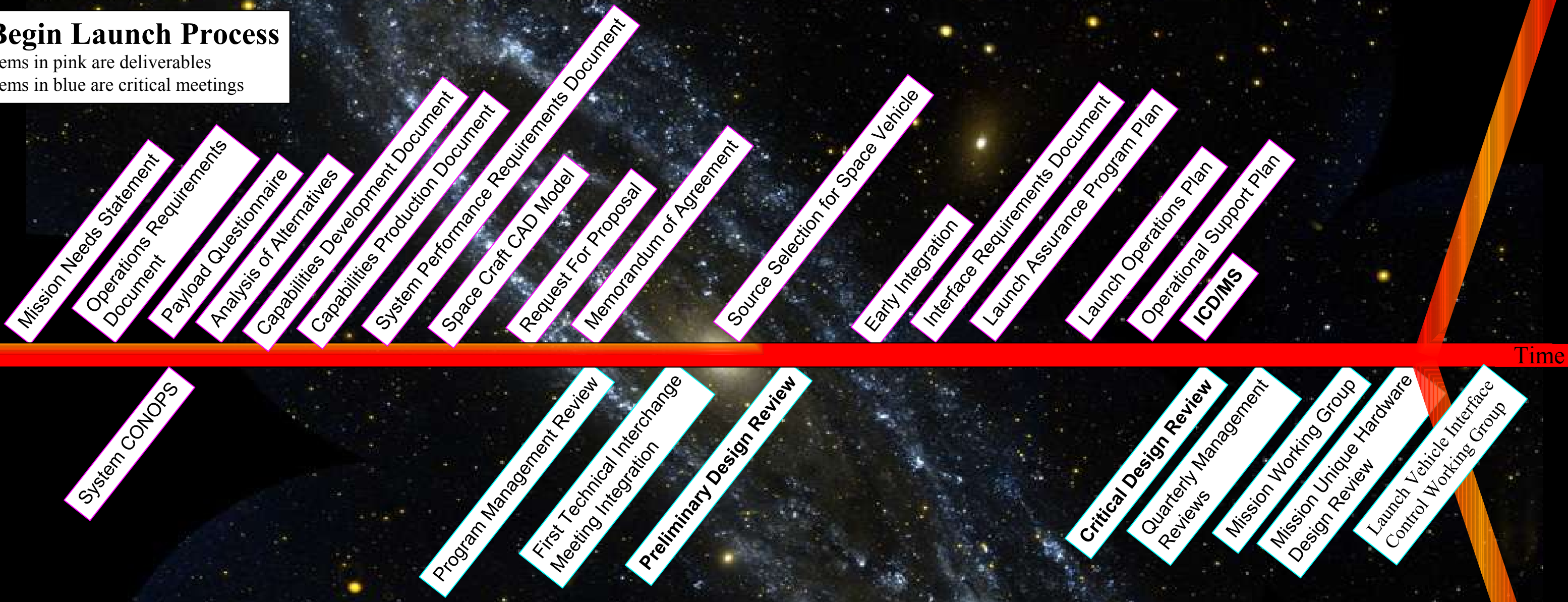
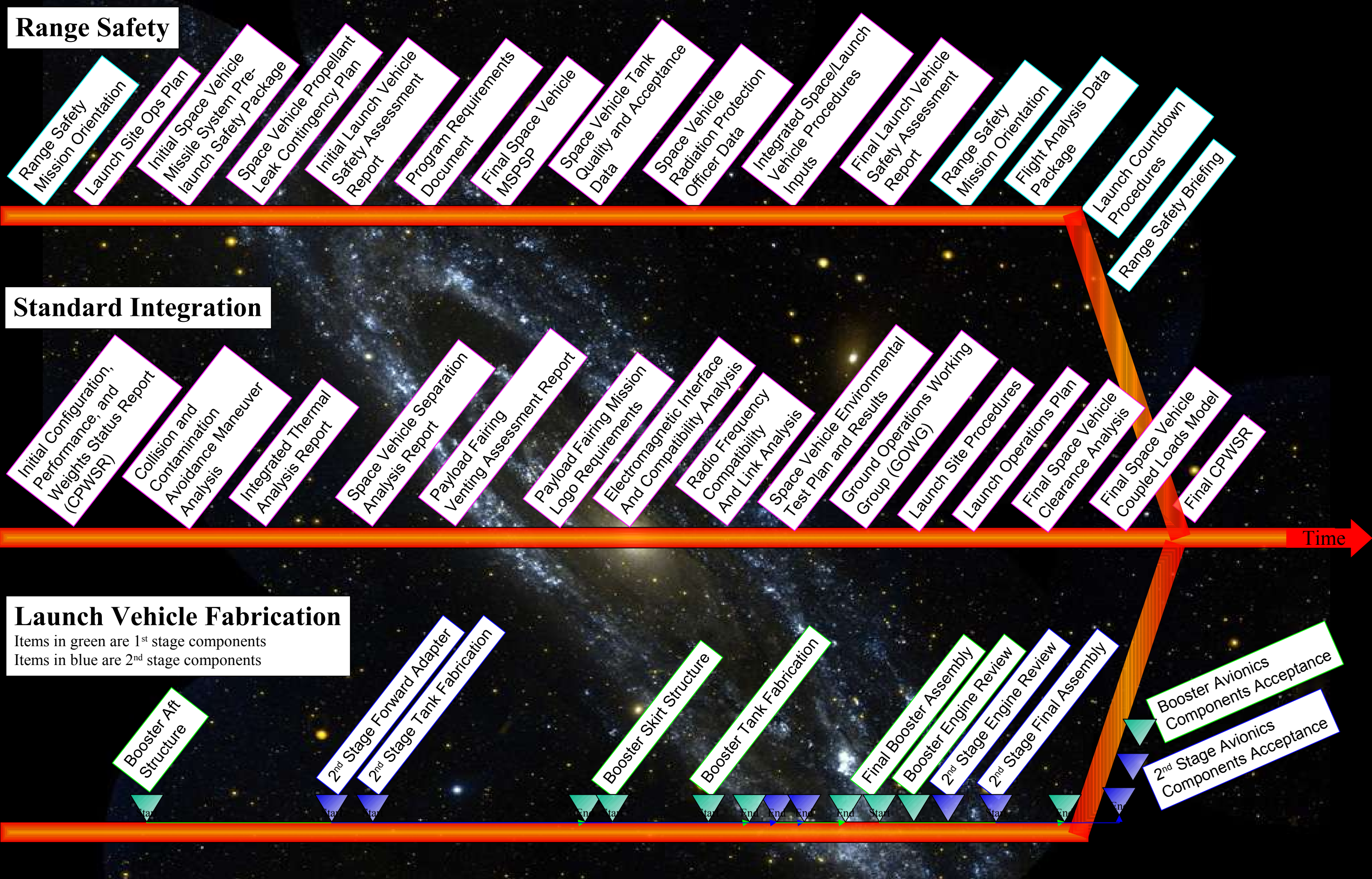


# General Timeline for Guide to Launch Management

This timeline is to be used as a reference for a standard launch process. The events shown here are a listing of major events of importance, but not a listing of all events that occur in preparation for a launch. The range and placement of events is for general information only. The time an event may occur is arbitrary. A large factor driving the launch process is the availability of funding.

**Begin Launch Process**  
Items in pink are deliverables  
Items in blue are critical meetings





# Final Four Months of Launch Integration



# Definitions of Critical Launch Process Events

- 1) **Mission Need Statement** – Document used to show a need exists
- 2) **Operational Requirements Document** – The ORD summarizes the Mission Need Statement, describes the overall mission area of affect, describes existing shortcomings of current systems, describes the capabilities required of the newly proposed system, discusses program support, and states program affordability. Constantly updated throughout program's life.
- 3) **Payload Questionnaire** – A completed Payload Questionnaire begins the future IRD discussions, provides initial assessment of launch services, special data required by the launch contractor, and mission unique requirements.
- 4) **Analysis of Alternatives** – Used to give viable alternatives.
- 5) **System Performance Requirements Document** – Specifies the demands of the system being produced. For MUOS, this document is the MUOS Performance Specification (MPS).
- 6) **Request For Proposal** – Government gives a request to contractors to meet its need. The RFP is sent to contractors who in turn send their proposal in response. The contractor proposal's are considered for actual work. Inside the RFP one finds the SOW, CDRLs, among other critical documents
- 7) **Memorandum of Agreement** – Defines the responsibilities and requirements of two or more authorities
- 8) **Source Selection** – Government (via Source Selection Integrated Product Team members) selects a contractor to provide the necessary space vehicle.
- 9) **Early Integration Studies** – Used to define the exact space craft (satellite). These are performed by the manufacturer. They include: Couple Loads Model, Thermal Loads Model, Trajectory Mission Planning, Contamination Requirements, Mission Unique Hardware, Compatibility Payload Hardware, Fluid Analysis, Software Analysis, Electrical Analysis, Safety Analysis, and Mechanical and Electrical Design. To be delivered 60 days before the Preliminary Design Review.
- 10) **Interface Requirements Document** – Document created after first TIM and early integration studies: Electrical requirements, dynamic environments, and range coordination. Draft IRD is to be submitted 60 days before Preliminary Design Review Meeting. Once IRD is submitted, the government has 30 days for review and comments. Government submits revised draft IRD. Contractor submits final IRD 60 days prior to the Critical design review. Government has 30 days for review and comments. Government submits revised final IRD 30 days prior to Critical Design Review
- 11) **Launch Assurance Program Plan** – Document by the selected contractor to include all aspect's of spacecraft integration with the launch vehicle and launch site Due 60 days prior to Critical Design Review. Gov. has 30 days to respond
- 12) **Launch Operations Plan** – Identify roles and responsibilities of contractor's launch team. Includes: Payload processing, launch pad, operations, launch training and scheduling, and launch rehearsals. Declares LRR and Development launch meetings Submit 60 days prior to CDR
- 13) **Operational Support Plan** – Due 60 Days prior to CDR. Describe operation of each satellite for no less than its lifetime
- 14) **Interface Control Document/Mission Specification** – Document created after final IRD is approved. ICD contains all actual physical, functional, environmental, operational, and performance requirements for the interface between the Spacecraft And Launch Vehicle. This document supercedes the IRD and SOW in case any conflicts arise. The ICD is a contractually binding document. Final ICD completed 60 days after Draft ICD
- 15) **Collision and Contamination Avoidance Maneuver Analysis** – An analysis conducted to show the Collision and Contamination Avoidance Maneuver design.
- 16) **Integrated Thermal Analysis Report** – This analysis defines the thermal environment of the spacecraft during pre-launch processing and flight. It predicts the spacecraft component temperatures under worst case pre-launch and flight thermal environments, while accounting for spacecraft heat dissipation, gas conditioning, aeroheating, and payload fairing characteristics.
- 17) **Final Space Vehicle Coupled Loads Model** – This model defines the spacecraft's structural response to dynamic loading conditions, including mass and stiffness characteristics and model damping schedule.
- 18) **Ground Operations Working Group (GOWG)** – A forum for coordinating launch site activities and resolving operational issues and concerns.
- 19) **Launch Site Operations Plan** – All spacecraft launch site support requirements are described.
- 20) **Ground Operations Readiness Report (GORR)** – A meeting is held immediately before arrival of the spacecraft at the launch site, to kickoff the launch campaign, review the readiness of the facility to receive the spacecraft, and ensure that processing plans, schedules, procedures, and support requirements are coordinated.
- 21) **Space Vehicle Flight Readiness Review** – A meeting held to give the space craft development and delivery schedule.
- 22) **Launch Readiness Review** – Occurring the day before launch, this is the final pre-launch assessment of the integrated launch vehicle/spacecraft system and launch facility readiness for launch. All significant launch systems items and processing to go for launch are discussed in a comprehensive review.
- 23) **Post-Launch Orbit Confirmation Data Report (Launch +7 days)** – Spacecraft flight environments and separation assessment is reported. A verbal review of how the launch vehicle and spacecraft preformed is conducted approximately two hours after the launch.