A UNIQUE PRODUCT LINE FOR ALL FLIGHT DYNAMICS NEEDS

*focusSuite*, GMV’s advanced off-the-shelf flight dynamics solution for satellite flight dynamics operations, responds to the needs of end-users and flight dynamics system developers. Our product line addresses the needs of satellite operators while providing a framework that allows further product development and evolution.
A REVOLUTIONARY CONCEPT

**focusSuite** is the result of more than two decades of successful flight dynamics developments and services to a continuously increasing customer base. It reflects the strong commitment of a flight dynamics market leader to make a unique system in order to provide our customers with the best possible solution.

**focusSuite** is at the same time:
- a commercial-off-the-shelf (COTS) product line for end users with big emphasis of flight proveness, reliability and operations efficiency.
- a flight dynamics software infrastructure (framework) that allows developing custom applications with unprecedented effectiveness.

**focusSuite** covers the needs of all types of missions and orbits (GEO, LEO, MEO, LEOP, …). Special emphasis has been put in providing multi-mission, multi-user and multi-satellite support. **focusSuite** sets a new standard in functionality, reliability, flexibility and user friendliness.

**MAIN COMPONENTS**

Our open framework architecture includes numerous ready to use components and the ability to integrate external applications with unprecedented ease. In addition to advanced process, data, users and communication management means, our suite of products also includes:

**Graphical User Interface (GUI)**

Efficient and ergonomic graphical user interface optimized for flight dynamics operations; it includes a proprietary toolkit for rapid GUI development and maintenance.

**Grafos**

Generic, robust XY plotting facility supporting a variety of plots: parameters versus time, parameter versus parameter, cartesian and polar representations, residuals, comparisons, etc.

**Ebro**

Event browsing facility allowing to display FD events (eclipses, sensors blindings, interference times, etc.) in a Gantt chart..

**Events Logging**

Events logging facility in charge of receiving, archiving, managing and distributing information, warning and error messages being generated.

**Application Programming Interface (API)**

Provides powerful access to data and process management layers.

**ART**

automated regression testing tool.

… and many more such as telemetry retrieval and display tools, integration of FD events with personal information management systems, data standardization (OrbitML), etc.

UNIQUE FLIGHT DYNAMICS FRAMEWORK

All **focusSuite**-based products and solutions share the same reference architecture and many common components. The framework includes:

- A powerful scalable and extensible 3-tier, client/server architecture
- A reliable and highly efficient data manager (compatible with any SQL database)
- An advanced GUI and GUI development toolkit
- Advanced automation means through Autofocus
- Advanced graphical capabilities
- Portability to different operating systems
- Extensibility
- Unique features such as undo/redo
focus

focusGEO provides full lifecycle flight dynamics operations support through our unsurpassed collection of flight-proven mission independent and mission specific functionality, including support for collocation station keeping, and chemical and electric propulsion.

Off-the-shelf flight proven support of commercial satellite buses is provided with accuracy fully consistent with native systems, including the following:

- Alcatel Alenia Space’s Spacebus 3000 and Satelcom
- Astrium’s Eurostar 2000+ and 3000
- Boeing Satellite Systems’ 376
- Orbital Sciences Corporation’s STAR-2
- NPO/PM’s Express
- Space Systems/Loral’s 1300

focus

focusLEOP addresses the flight dynamics needs for launch and early orbit phases of geostationary missions. It provides an engine firing optimization software supporting GTO and SSTO transfer strategies.

focus

focusLEO addresses the flight dynamics needs for low and medium earth orbit satellites through a combination of mission independent and platform specific modules.

focus

focusCN covers the specific needs of satellite constellations such as Galileo and includes special constellation management features.

MISSION ANALYSIS SUPPORT

Based on focusSuite infrastructure we have developed a wide range of mission analysis tools to cover special needs such as:

matool
Powerful tool for the definition, realistic assessment and optimization of station keeping strategies, including collocation station keeping.

sigo
Multi-mission tracking scenario analysis tool.

hplp
High precision lifetime prediction.

launch
Launch window computation tool.

trento
Transfer design optimization tool for GEO satellites.

autofocus

autofocus provides full automation support for hands-off operations fully compatible with today’s operations based on procedures. It assists the human operator by means of an agent that handles procedures written in SOL (Spacecraft Operations Language). autofocus provides two user environments for procedure definition and execution.

visualfocus

Visualfocus is a powerful visualization tool specifically designed to meet highly demanding flight dynamics requirements. It provides 2D and 3D interactive views of mono-satellite or multi-mission scenarios with advanced features.
**focusSuite**, A COMPLETE PRODUCT LINE FOR ALL TYPE OF ORBITS AND FLIGHT DYNAMICS NEEDS

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<td>Mission specific functions</td>
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**AN INCREASING NUMBER OF SATISFIED CUSTOMERS**

**focusSuite** worldwide customer base is steadily growing with systems installed in a large number of customers, both institutional and commercial, for different types of missions. More than 70 satellites corresponding to 12 satellite operators and 15 different designs are supported by our product line. **focusSuite** stand-alone products provide flight dynamics for LEO, MEO, GEO, LEOP and constellation missions for:

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<th>Space Agencies</th>
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