



Course 315:

# Local Area DGPS for Aircraft Precision Approach including the FAA's Local Area Augmentation System (LAAS)

**On-site only**

## Quotes:

"Excellent presentation; very impressed, exceeded expectations."  
*Fred Ventrone  
Averstar*

"Appreciate humor - keeps audience interest alive. I like that he provides simple mathematical examples that help to get the processes across without delving into complex equations. Was able to touch all the pertinent issues."  
*Sonja Smith  
NAVAIR*

"Saved many hours in learning this subject matter. Numerical examples really helped. Thanks."  
*Name withheld*

"The course will be of great help to me in evaluating LAAS for precision approach in the context of national defence policy and NATO requirements."  
*Capt. Andre Vander Pluym  
Canadian Armed Forces*

"This information will help in conducting flight testing of a LAAS-equipped integration."  
*Mark Dall  
NAVAIRWARCENACDIV*

"The LDGPS seminar was enlightening. The info unravelled a seemingly complicated program and illuminated its simplicity. I can directly apply this knowledge to solving problems and improving the Joint Precision Approach and Landing System (JPALS) Program. Good job!!"  
*Lawrence Cooper  
ARINC*

"Dr. Skidmore is perhaps the best speaker I have heard on technical issues. His enthusiasm for transferring knowledge is excellent."  
*Name withheld*

Tuesday	
8:30	<b>Background and Requirements</b> Perspective of GPS/GNSS in aviation Enroute, terminal, non-precision and precision approach Accuracy, integrity, continuity and availability Category I, II and III precision approach standards <span style="float: right;">Dr. Trent Skidmore The Ohio University</span>
9:45	<b>Components of the DGPS Precision Approach System</b> Ground system, functions, plans Airborne system, functions, design Overall system design and architecture Carrier-smoothed code vs. carrier phase measurement (real time kinematic, RTK)
11:00	<b>The Data Broadcast Signal</b> Frequency band selection International considerations VHF band issues (communications, navigation)
12:00	<i>Lunch is on your own</i>
1:30	<b>Integrity Monitoring</b> Redundancy and consistency checking Probabilities for fault-free performance and missed detection A Gaussian error model for system performance Comparisons with Receiver Autonomous Integrity Monitoring (RAIM)
2:45	<b>Availability Considerations</b> Operational and service availability Deriving meaningful numbers for GPS precision approach Modeling and performance Availability enhancements Airport pseudolites (APL's)
4:00	<b>Implementation Issues</b> Aircraft integration concerns Future public use systems Transitioning to GNSS Developing LAAS standards
5:00	

**This course has been updated to reflect the latest FAA/ ICAO and RTCA documents.**

## About this course

This course is intended to provide an in-depth look at the use of local-area differential GPS for aircraft precision approach and landing for Category I, II, and III operations. The course focuses on the key system elements necessary to meet the rigorous requirements of precision approach and landing.

**Instructor:** Dr. Trent Skidmore



## Prerequisite

A familiarity with the fundamentals of GPS operation (*Course 111 or 122*), the use of DGPS techniques for performance improvement and an understanding of engineering principles and terms.

## Who Should Attend

- Engineers, system analysts and others who need to become familiar with the technology, performance capabilities, architecture and system design of local area DGPS systems, including the FAA Local Area Augmentation System (LAAS).

## Objectives

- To provide the attendee with a clear understanding of the capabilities, trade-offs and system design principles employed in local area DGPS systems.
- To offer a survey of the latest advancements, architectures, and characteristics of local area precision approach systems.

## Materials You Will Keep

A notebook containing copies of all presentation materials used during the course

To register, or for more information, call Navtech at 1-800-NAV-0885 or 703-256-8900, or fax to 703-256-8988, or e-mail to [courses@navtechgps.com](mailto:courses@navtechgps.com). For updated information, look on our home page: [www.navtechgps.com](http://www.navtechgps.com)

