Direct Approach Consulting Inc.

Flight Procedure Design

Your best approach for:

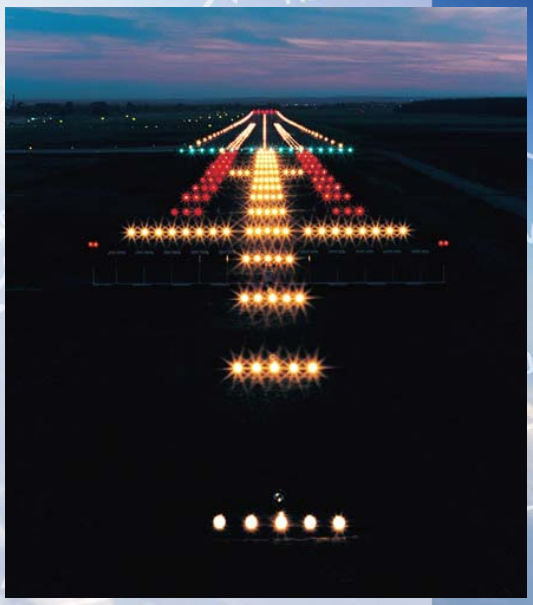
- **safety**
- **operational efficiency**
- **maximizing revenue**

www.directapproach.ca

Direct Approach

Direct Approach is a Canadian based company providing instrument flight procedure design services worldwide. Our clients include airports, flight operators, resource companies, civil aviation regulatory agencies, and anyone with an interest in safe and efficient air access.

We are trained in all recognized criteria, including **PANS-OPS**, **TP308**, and **TERPS**. We are recognized experts in RNAV (GNSS), high altitude & mountainous terrain, and rotary wing procedures.



Let us help you increase your accessibility, safety, and operational efficiency with an IFR approach and departure.

Marinus Waterberg

Owner / Lead Designer

Marinus has over 30 years aviation experience, including 5300 hrs total flight time. He is a recognized leader in developing and utilizing RNAV technologies and applications. Marinus has designed precision and non-precision conventional and RNAV approaches globally, including North America, South America, Africa, and Australia.

Marinus started his career with the Canadian Armed Forces, initially as an instructor, then transferring to a Squadron, where he was V-VIP Aircraft Commander for flights involving various Heads of State, government and military V-VIP's.

After the military, Marinus joined the Aviation Technology Faculty at Selkirk College in British Columbia as an IFR and Commercial Pilot instructor.

Later he took on various responsibilities with Nav Canada and Transport Canada where he was an Airspace and Instrument Procedures Design Specialist and Aerodrome Safety Officer. He is also an ISO internal auditor and inspector, and a TP308 criteria national Woking Group team member.

In 2005 Marinus became the Lead Designer for HART Aviation. There he lead HART Aviation's successful Australian (CASA) Part 173 approved Design Organization and ISO 9000 certifications. Marinus supervised a team of designers working with PANS-OPS and TP308 criteria before starting Direct Approach.

Throughout his career, his significant accomplishments have included: Designing the first FAA 8260.44A RNAV Departure criteria procedure for public use; Designing RNAV Standard Terminal Arrivals (STARS) for Vancouver International airport, and being the first RNAV Departure criteria instructor certified by Transport Canada.

Marinus brings a unique qualification mix with TP308 (Transport Canada), TERPS (FAA), and PANS-OPS qualifications.

Evan Colpitts

Designer

Evan has been actively involved in Instrument Procedure Design since 2006, where he began working with HART Aviation while completing a Diploma of Technical Studies program in Airport Operations from the British Columbia Institute of Technology.

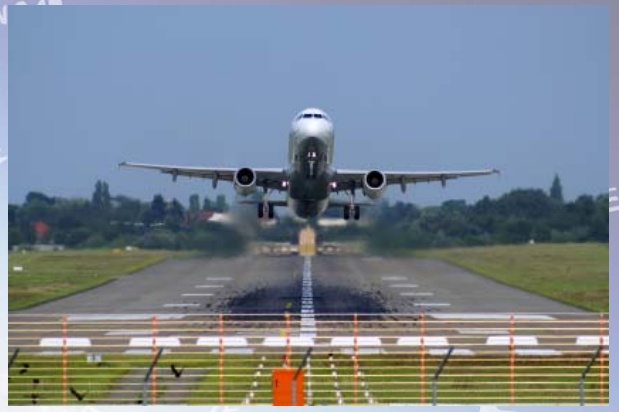
Since graduating in early 2007, he has been involved in the design or review of over 20 conventional and RNAV Instrument Procedures in Canada, South America, Africa, and Australia.

Evan has established a record of applying new technologies in the Procedure Design process. He led HART Aviation's transition to a fully computer based design process, combining off the shelf software with customized in-house programming solutions. In 2007, he became the first procedure designer in the world to complete the innovative computer based distance-learning program offered by the Air Navigation Institute. The cutting-edge online program was capped by a two-week condensed practical session in Switzerland, where he became certified in ICAO PANS-OPS Doc 8168 procedure design criteria.

His technical expertise is rounded out with a B.A. in Geography from the University of British Columbia. Other accomplishments include the BCIT Airport Operations Top Student Award and the William Templeton Award for Academic Achievement and Leadership.

Services

- Precision & Non-precision Approaches.
- RNAV (GNSS)
- VOR / NDB / LOC / ILS
- RNAV and Conventional departures.
- Fixed and Rotary Wing procedures.
- Approach procedure verification & QA
- Airspace configuration and utilization advise.



Direct Approach can improve the IFR access to your airport or landing area by designing optimum IFR procedures based on your needs. Properly designed IFR procedures improve access, increase operational efficiency, which increases revenue, decreases costs, while improving safety.

Our clients include:

- Governments.
- Aeronautical Information service providers.
- Airports.
- Mine and other resource companies.
- Aircraft operators (fixed or rotary wing).
- Hospitals & emergency services.
- Aircraft safety organizations.

GNSS Benefits

The benefits of GNSS applies equally to Fixed Wing and Rotary Wing Aircraft

> The use of satellite technology has allowed the aviation industry to move away from its dependence upon ground based navigation systems. With the advent of navigation by the Global Positioning System (GPS), also known as Global Navigation Satellite System (GNSS) and approval by national civil aviation regulatory authorities to fly GNSS instrument approaches, it is theoretically possible to design and fly instrument approaches to any landing surface.

Benefits of this technology include:

SAFETY – GNSS non-precision approaches (NPA's) offer excellent position awareness via moving map displays and stabilized descents. These combine to minimize the potential for controlled flight into terrain (CFIT) accidents, which typically occur during the final descent on or near the extended runway centerline;

DEPENDABILITY – The GNSS system is virtually always operational and reduced landing minima are available in many cases. These characteristics combine to reduce the number of delays, cancellations and diversions to alternates;

EFFICIENCY – GNSS NPA's offer optimized approach routing, thus reducing flight time and cost;

REMOTE AREAS – GNSS can provide accurate guidance in remote and oceanic areas where it is impractical or impossible to provide reliable and accurate ground-based guidance, even in areas well-served by ground-based aids. GNSS brings this capability within economic reach of all operators. This will allow en-route and terminal airspace to be designed for maximum capacity and to reduce delays;

GNSS Benefits (continued)

ACCURATE APPROACH GUIDANCE – GNSS can provide more accurate approach guidance and, in many cases vertical guidance. These features reduce visual manoeuvring and enhance safety. The ability to provide better approaches to more runways without additional airport infrastructure cost will increase the usability of many airports and reduce delays, diversions and cancellations due to bad weather;

DECOMMISIONING OF TRADITIONAL NAVIGATION AIDS – The availability of GNSS guidance will allow the phased decommissioning of certain traditional ground-based navigation aids. Operators can now avoid the cost of replacing some traditional aids;

GLOBAL APPLICATION – GNSS is global in scope and has the potential to support all phases or flight, resulting in a seamless global navigation system and eliminating the need for a variety of ground and airborne equipment, each meeting specific requirements;

ROU TE FLEXIBILITY – The availability of accurate GNSS based guidance on departure supports efficient noise abatement procedures. It allows greater flexibility in routing, provides the possibility of lower climb gradients and higher payloads where terrain is a restricting factor;

ENVIRONMENTAL BENEFITS – GNSS design and use of environmentally beneficial arrival and departure procedures allow the aircraft systems (i.e. Flight Management Systems) to manage flight performance (climb, descent, engine performance, etc.). Benefits include reduced fuel emissions and environmentally tailored noise footprints.

Contact Us

Direct Approach Consulting Inc.
10480 Hollybank Dr.,
Richmond, BC
CANADA V7E 4S5

Ph: +1-604-970-2527
E-mail: marinus@directapproach.ca
Web: http://www.directapproach.ca