

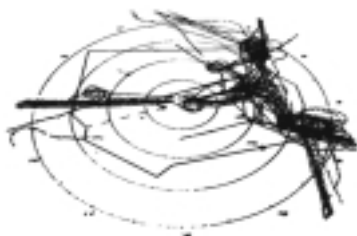


COMPAS Advanced Arrival Management System

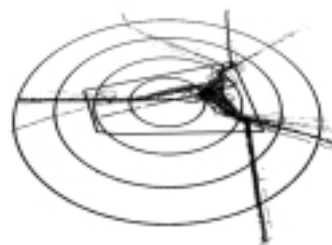
Growing traffic volumes and new airlines result in a continuing increase in flight movements. Busy airports and limited runway capacity, bottlenecks in the overall traffic scenario, and the lack of airspace capacity for approaching traffic have become common problems. As a result a large number of aircraft holding patterns need to be flown, there are frequent flight delays and air traffic controllers have to cope with a heavy workload. To overcome these problems the optimization of flow for arriving and departing traffic is required.

COMPAS helps to optimize the traffic flow

The advanced computer solution COMPAS (Computer Oriented Metering, Planning and Advisory System) – developed in cooperation with experienced air traffic controllers – performs the planning, scheduling and sequencing of the arriving traffic. ACC and APP controllers get validated advice on how to handle the large amount of arriving traffic. This results in an increase in safety and optimal use of airspace capacity, as the controllers have more time to deal with critical situations and may handle more traffic. Safety regulations, as well as economic flight profiles, optimum use of airspace, weather and wake-vortex information, etc. are taken into planning consideration so that COMPASS assures a conflict-free approach with minimum delay resulting in optimal use of runway capacities. So path stretching procedures and holding patterns are avoided as far as possible.



Tracks without COMPAS



Tracks with COMPAS

The essence of the planning process is based upon

- Flight plan-, radar- and weather data
- Filtering of inbound traffic (if not provided by RDPS)
- Code/call sign correlation
- Use of "Base Of Aircraft Database" (BADA) for flight profile calculation
- Airport acceptance rate (changeable by APP controller)
- Airspace structure (sectorization, STARs, etc.)
- Fast and highly efficient optimization algorithm for sequence calculation

COMPAS calculates the estimated, earliest estimated and planned times of arrival at the Metering Fixes (MF) and gates and derives the respective advice. The result is clearly, graphically displayed at all the involved controllers' work stations. The user can modify the computer-generated proposal (e.g. adding slots, changing sequence, change of airport acceptance rate etc.) resulting in a new arrival sequence

calculation: In the ACC and APP the planning result is updated automatically. Intersector co-ordination with adjacent FIRs and UIRs is performed according to the OLDI protocol standard.

COMPAS benefits

As a planning and co-ordination tool, COMPAS can be integrated easily into the whole air traffic control system. The COMPAS benefits for the different authorities can be summarized as follows:

For civil aviation/ATC

- Optimized utilization of airspace and runway capacity
- Reduced co-ordination effort between ACC/APP controllers
- Reduced planning effort as well as controllers' workload
- Reduced controller/pilot radio communication

For commercial airlines

- Minimized delays
- Reduced fuel consumption

For airport authorities

- Optimized utilization of airport capacity
- Better planning of aircraft ground handling due to early knowledge of precise landing times

For environmental protection bodies

- Reduced environmental impact (fuel emissions and noise)

