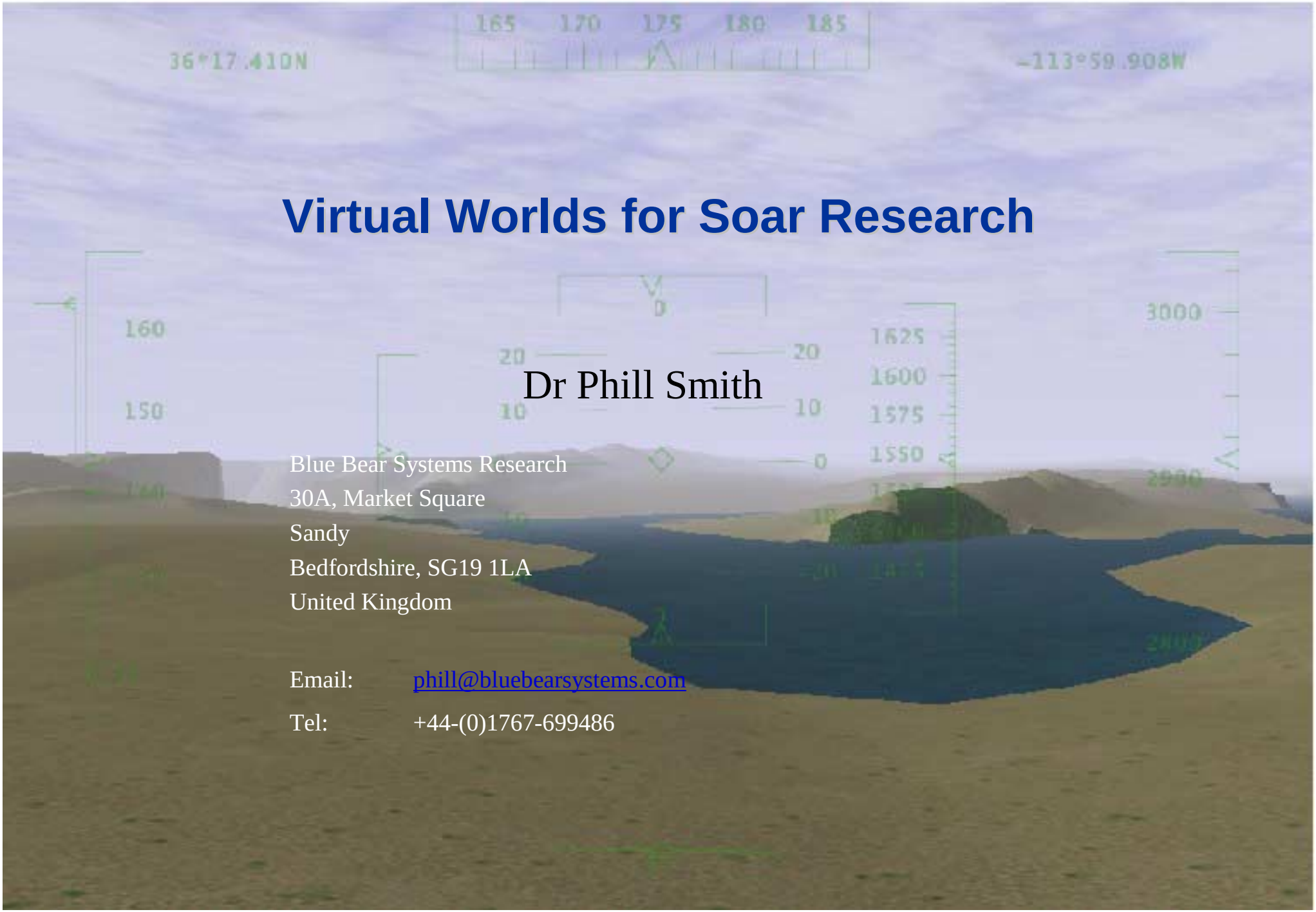

Virtual Worlds for Soar Research

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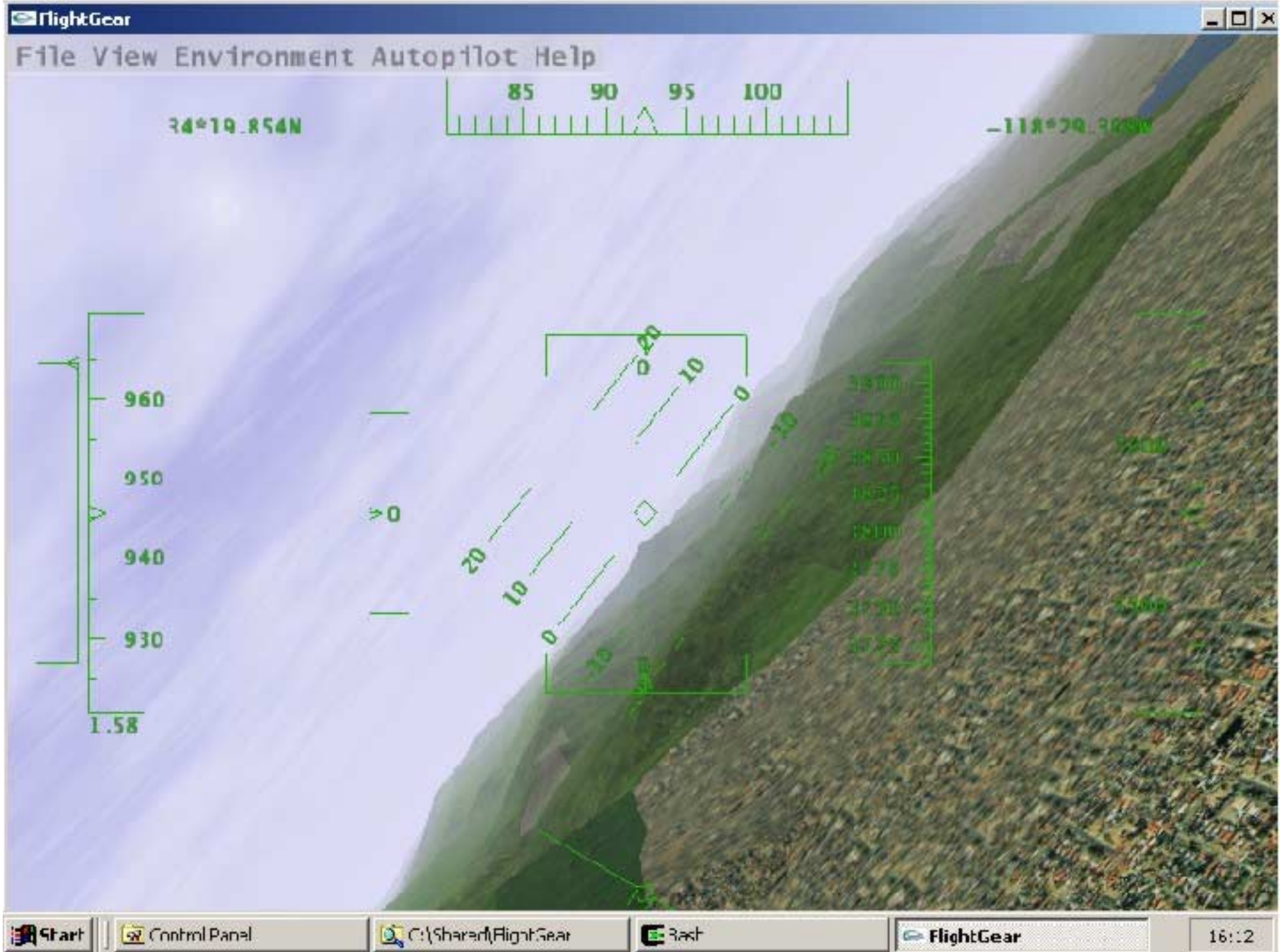
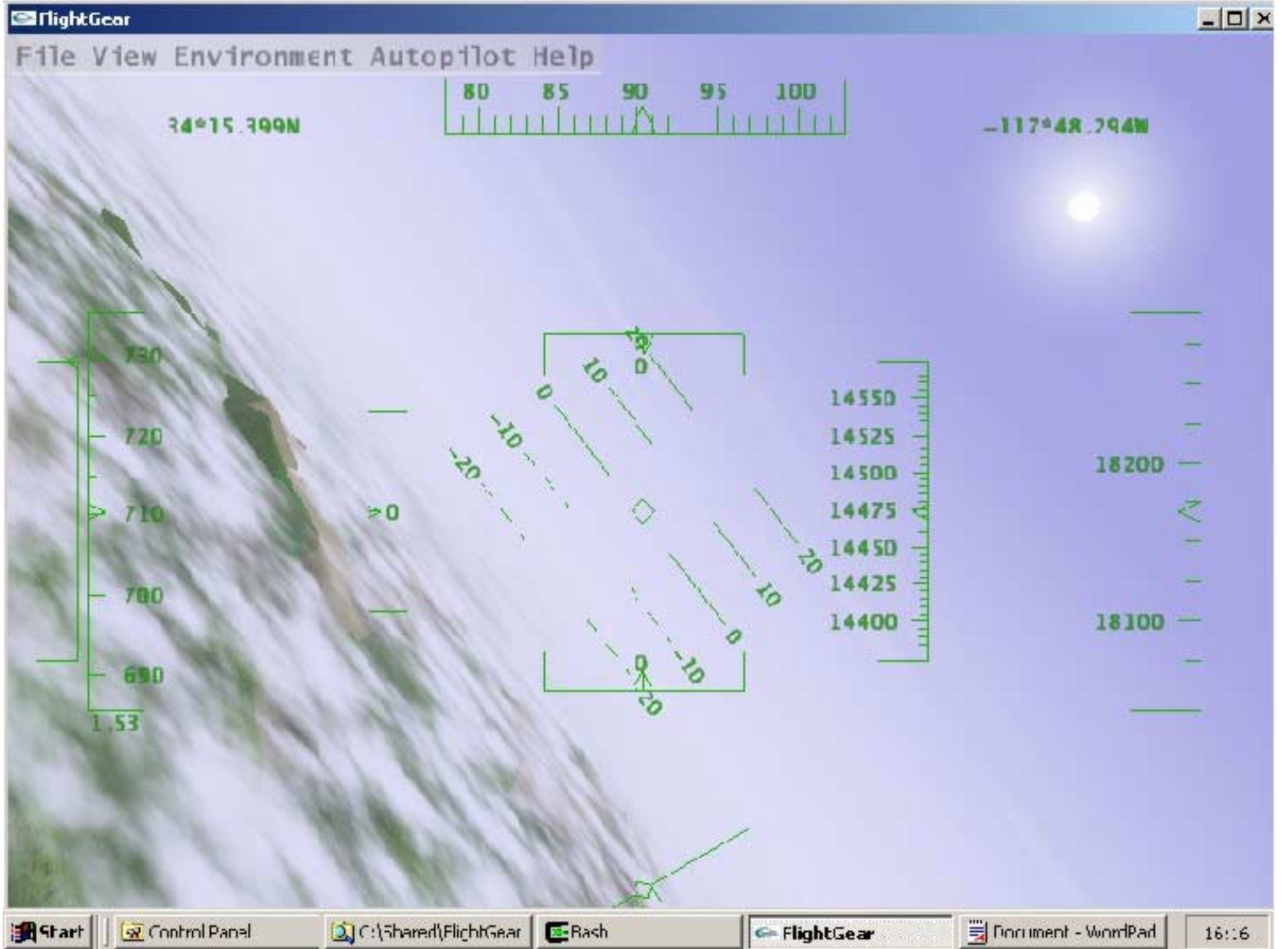
Virtual Worlds

- All based on free software
- The Virtual World concept comprises the following components:
  - An Internet based ongoing constructive simulation for military aviation, 24 hours a day, 7 days a week
  - A hub that collects and collates users connected to it
  - An arbitrator of hit/miss issues
  - Manages weather, visibility, etc
  - Manages parallel worlds that may need to co-exist:
    - Civil aircraft operations
    - Military aircraft
      - Different types of operations
  - Possible later inclusion of other types of units
    - Land
    - Sea

FlightGear

- Based on FlightGear, a freeware flight simulation package
  - Developed by the University of Minneapolis
- Requires a fairly high spec PC
  - 800MHz processor minimum
  - A good 3D graphics card with at least 32Mb on-board memory
  - Windows or Linux operating systems


FlightGear
File View Environment Autopilot Help
85 90 95 100
960
950
940
930
1.58
20 0 10 0
20 10 0
Start
Control Panel
C:\Shared\FlightGear
Bash
FlightGear
16:12


FlightGear
File View Environment Autopilot Help
80 85 90 95 100
730
720
710
700
690
1.53
0
14550
14525
14500
14475
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14400
18200
18100
Start
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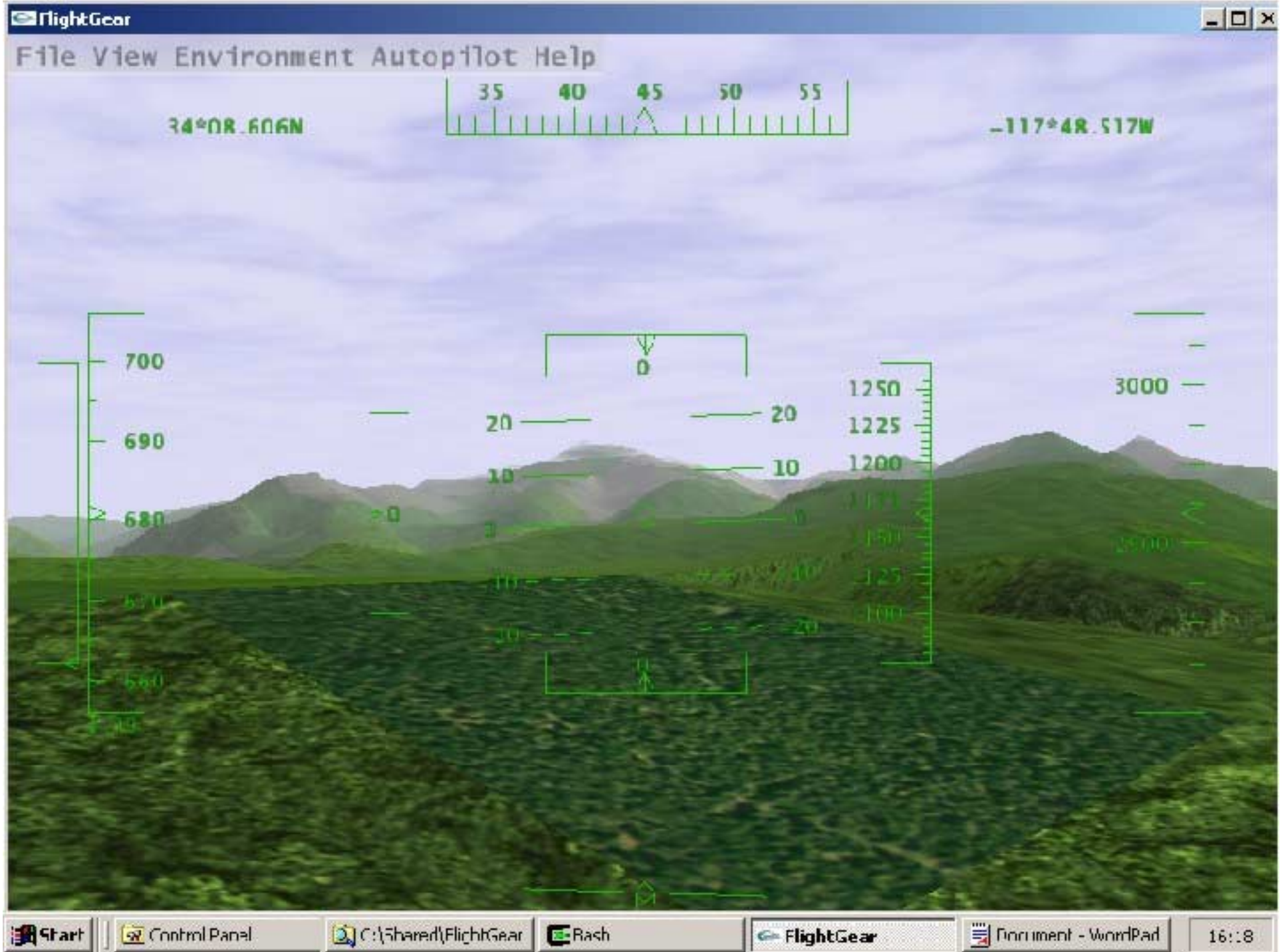
Bash
FlightGear
Document - WordPad
16::6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File View Environment Autopilot Help
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34*0R.606N
-117*4R.517W
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690
680
0
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1225
1200
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Control Panel
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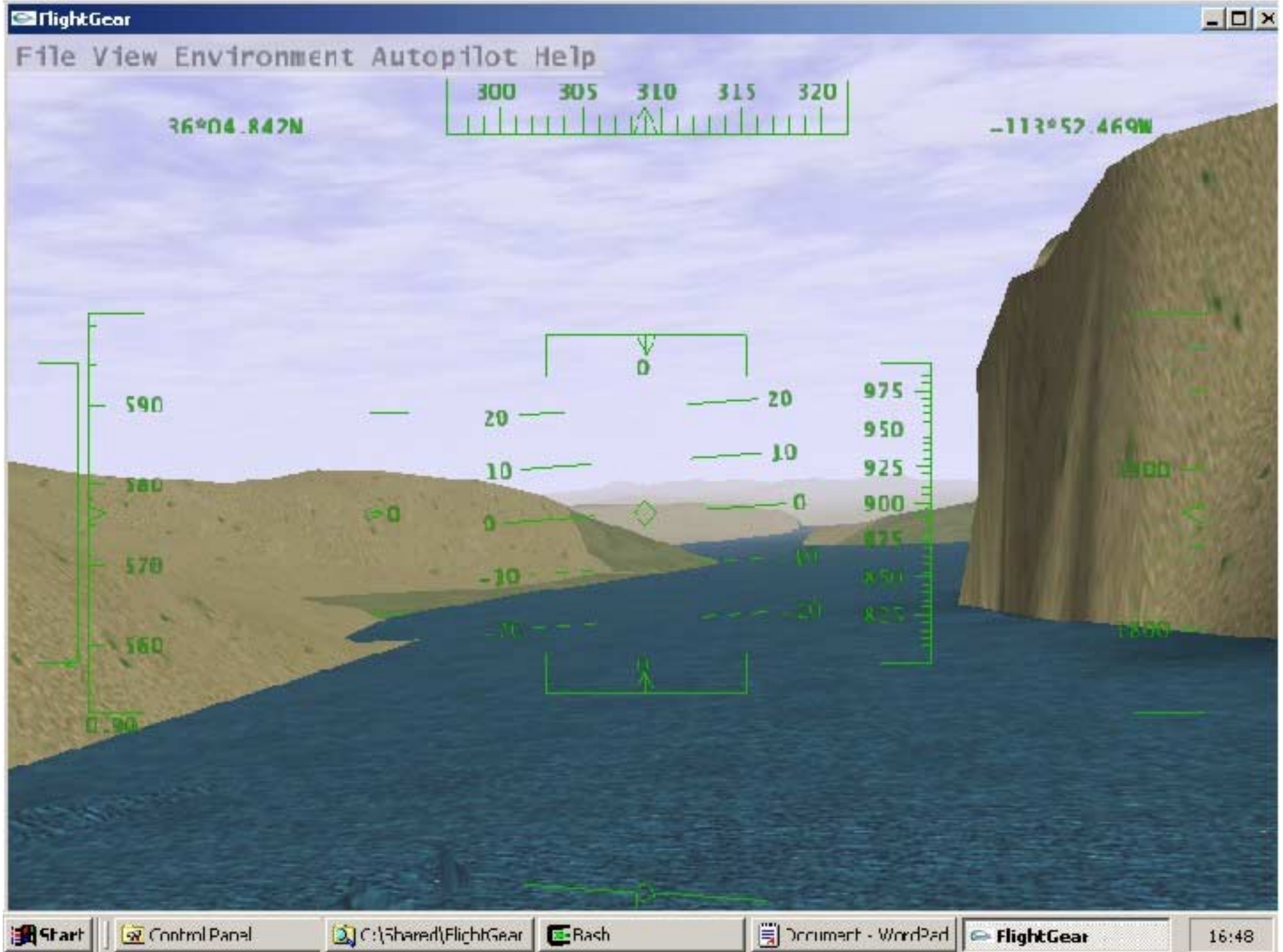
Bash
FlightGear
Document - WordPad
16::8


FlightGear
File View Environment Autopilot Help
300 305 310 315 320
36*04.842N
-113*52.469W
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580
570
560
0.90
0
20
10
0
-10
20
10
0
975
950
925
900
1800
1600
Start
Control Panel
C:\Shared\FlightGear
Bash
Document - WordPad
FlightGear
16:48

Soar Research Opportunities

- Provides a useful research environment
  - Not just for military applications
    - Road traffic
    - Animal migration
    - etc
  - Access to Guinea-pigs to test algorithms
  - We will be using it too
- We will be using the new Soar API
  - Users can begin coding immediately – like TankSoar
  - Soar code will be downloadable into the Virtual World
- Interested in encouraging the following:
  - Gaia – controlling the evolution of scenarios
  - Tac-Air-Soar type algorithms
  - Demonstrations of teamworking
  - Future UAV applications

User Issues

- The modular software architecture means that:
  - It can be used at a variety of levels:
    - Single user
  - Through to:
    - Multi-player full combat cockpit environments
- Model integration
  - Tools will be provided to guide users through model integration
  - FORTRAN, C based code
    - For hand coding
  - Matlab/Simulink autocode generation
    - Direct download of models into the environment

Project Timescales

- Basic demo version – standalone operation
  - May 2001
- Internet connectivity
  - June 2001
- Soar AI interface
  - July 2001
- Virtual world hub
  - September 2001
- Air-to-air weapons
  - November 2001
- Intelligent targets
  - December 2001

Other Uses

- Internet based games systems
  - Using the games community to help exercise and test the system
- Simulation model development
- Systems research

System Availability

- It’s free
- Interested to know about user applications
- Feedback welcome
- Some demo disks available here
- Can be downloaded from www.bluebearsystems.com

Any Questions?