$$\frac{\partial c}{\partial t} + u\frac{\partial c}{\partial x} + v\frac{\partial c}{\partial y} + w\frac{\partial c}{\partial z} = \frac{1}{\rho}\frac{\partial}{\partial z}\left[\rho\left(K_z\frac{\partial c}{\partial z} + w_s c\right)\right] + \frac{Q}{\rho}$$

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Part II: Appendices

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Part II: Appendices

Amendments

Version	Date changed	Cause of change	Signature
2.3-2	020618	Changed paragraph E3.3	KH
3.0	040610	Changes to update to 3.0 functionallity	PI
3.11	060815	Update 3.11	GS
3.20	100616	Update 3.20	GS

Contents

Appendix A: Hardware Recommendations

A1 Introduction

The following computer hardware, operating systems and peripherals have been tested with Airviro v3.2 and can be recommended for use with Airviro v3.2. Airviro may work with other combinations of hardware and peripherals, but SMHI cannot guarantee or support the use of Airviro together with hardware and software, which are not mentioned in this appendix (A).

A2 Server Computer Hardware

Airviro runs on Linux platforms but Red Hat, Fedora and CentOS Linux are the preferred operating system. The recommended version of Linux is Redhat because it has support but any Linux OS with equivalent version of the Linux kernel and libc will do.

Disk and memory sizes are given for small systems (one or two user systems). The following items should all be dimensioned based on an analysis of the specific Airviro application to be operated. Recommendations can be changed due to availability of new computer hardware.

- Disk size
- CPU speed
- RAM memory
- Number of serial ports
- Number of users allowed by the operating system

A2.1 Low end system

A PC with SCSI disks:

- at least 60 GB hard disk
- at least 4 GB RAM.
- CentOS operating system.

A2.2 High end system

A PC with SCSI RAID 5 disks:

- at least 3x60 GB SCSI disks. Must be identical.
- at least 8 GB RAM
- Redhat Enterprise operating system.

A2.3 Calculation machines

Airviro 3.20 supports calculation machines, so called calculation slaves used for running dispersion calculations. The bottleneck for dispersion calculations is the processor. The main issue for a calculation slave is therefore the processor. Disks are unimportant. We recommend at least a PC with 1 GB of memory and IDE disk. The recommended OS is CentOS.

A3 Web clients

Any client that can run a JavaScript 1.2, Java 1.1 compliant web browser will do. However, for performance reasons we recommend a PC with at least 2 GB of RAM.

A4 Additional serial ports

Cyclades Cyclom-Y serial port multiplexer for the PCI bus is recommended.

A5 Modems

The recommended modem is the US Robotics Courier V.Everything and Everywhere. So called Winmodems are not working with Linux (Normally built in PC modems).

Other modems may work if they meet the following criteria:

- Hayes-compatible commands must be supported
- The same modem type should be used at both ends to ensure stable connections
- Modems should support configurable hardware handshaking (CTS/RTS) to be able to meet conditions against both the workstation and the logger
- Modems must support toggling of DSR end signal on carrier loss and should support automatic reset on DTR loss
- Modems must be able to list their stored configuration

A6 Printers

Normally printing is made from the client hardware. However for server initiated printouts, Airviro produces print files in PostScript level 2 format. The following printers are known to work:

1. For normal black and white printouts with a high resolution the HP LaserJet VI MP with PostScript can be used. The printer should be equipped with sufficient RAM memory and PostScript level 2.

2. There are also two types of colour printer available. The cheaper alternative is the ink-jet type printer where the HP DeskJet 1600CM or HP DeskJet 2500CM with PostScript level 2 is recommended.

3. For a more expensive colour printer the HP colour LaserJet with PostScript level 2 can be used.

A7 Data Loggers for Automatic Data Collection

Airviro systems have been successfully used with loggers from the following manufacturers:

- Monitor Labs/Monitor Europe
- Thermo (42i, 43i, 48i, 49i)
- Met1
- BAM1020
- Campbell (always used for Airviro principal masts (see appendix E3.1.1))
- Opsis Analysers using ComVision
- Opsis loggers
- Horiba
- Envidas
- Philips / DMS / A30
- Odessa
- Nilu
- Aanderaa
- Dasibi
- Marksman
- API
- ESC
- Ecotech
- TEOM
- All loggers / instrument with support for the Extended Bavarian protocol

SMHI has also developed a special communication language so that it is possible to configure data collection from other loggers.