

*A*utomated *S*hipboard *A*erological *P*rogramme

- *Cost-effective data collection from the oceans*
- *Reliable and effective data*



World Meteorological Organization



The Automated Shipboard Aerological Programme (ASAP) provides data that are of vital importance to the World Weather Watch and is a cost-effective source of baseline upper-air data from the oceans. As part of the global observing system, ASAP data can be used to support many applications, including global climate studies.



BACKGROUND

ASAP in its present form began in the middle of the 1980s and was organized by the World Meteorological Organization's ASAP Coordinating Committee. In recent years the responsibility for coordinating the overall implementation of the programme, including monitoring its overall performance, both operationally and in respect of data quality, passed to a Ship Observations Team (SOT) established by the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM).

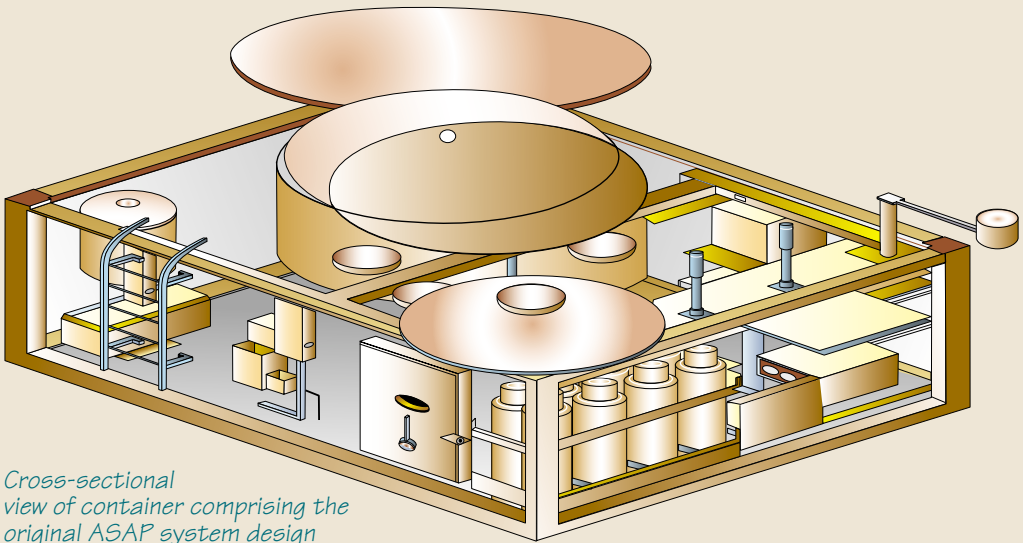
The original ASAP system was developed as a modular 'containerized' unit that could be quickly installed on, or removed from, a host ship. The system was completely housed within a specially modified standard 6.1 metre (20 foot) shipping container. This container included all necessary electronics and antennas, the balloon launching system, stowage for consumable supplies such as helium, balloons and sondes, and adequate

operator workspace. It only required a suitable open deck space and connection to the ship's power supply. The capital cost of the containerized ASAP system was found to be equal to or less than that for a new land-based aerological sounding station.

Containerized ASAP systems met their original design concepts and had the advantage that they could relatively easily be transferred from one ship to another. However, finding suitable ships with non-obstructed and easily accessible deck space can be difficult. Furthermore, the extra costs incurred in the maintenance of the container and its peripheral equipment, such as air conditioners and mechanical launching systems, are often restrictive.

In recent years an alternative system configuration, known as a 'distributed' system, has been developed to expand the versatility of the ASAP concept. Distributed systems are essentially limited to the required electronics





Cross-sectional view of container comprising the original ASAP system design

which are installed in existing ship spaces accessible to the operator, usually on the bridge or nearby. Manual or remote launching techniques are employed and the

consumable supplies are stored in an appropriate onboard space. Alternatively a 3.05 metre (10 foot) container is now often used for both launching and stowage purposes.

ASAP OPERATORS

Countries that currently operate ASAP systems on a regular basis are Japan (7), Denmark (3), France (4), Germany (4), Spain (1), Sweden/Iceland (1), the USA (1) and the UK (1). However, some countries also recruit ships to perform ASAP soundings on a less regular basis, when a perceived need is established.

In addition, the eighteen participating European National Meteorological Services which comprise EUMETNET have also recently become involved in ASAP operations. There are presently 2 EUMETNET ASAP (E-ASAP) ships in operation – one plying the North

Atlantic route, where data-sensitive areas have been identified, the other in the Mediterranean. Further E-ASAP ships are planned for the future.

The ASAP concept gained a global dimension with the introduction of a new initiative entitled the Worldwide Recurring ASAP Project (WRAP). For this project a number of countries collaborated to install and operate a distributed ASAP system on board a scheduled round-the-world container ship. Soundings commenced in April 2001, as planned, when the vessel cleared the South African coast on the Indian Ocean leg of its passage.

DATA

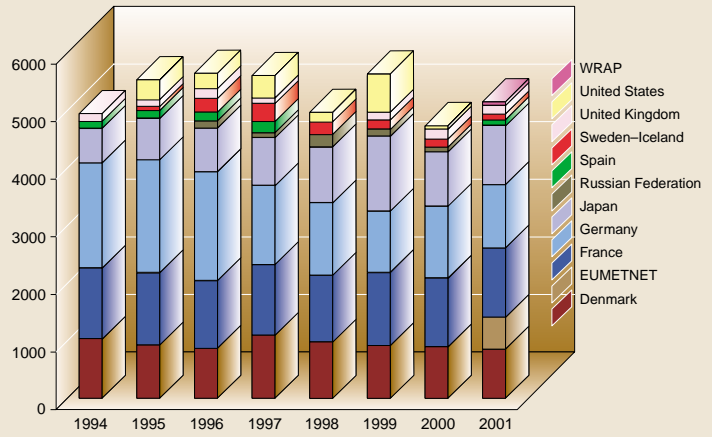
The quality of ASAP data is generally found to be very high, comparable to the quality of data from dedicated ocean weather ships, with sounding heights exceeding 20 kilometres.

The quantity and quality of data collected in real time and transmitted over the Global Telecommunication

System has shown significant improvement since the early years of ASAP. The total number of ASAP soundings has increased to approximately 5 000 annually (see figure).

The majority of national programmes have now adopted the Inmarsat C system for transmitting data. This system has approximately 99 per cent communications efficiency, allowing data to be communicated as effectively as other upper-air data on a worldwide basis.

The Global Positioning System (GPS) and Loran are now the most commonly used systems for determining radiosonde speed and direction.



ASAP soundings
1994-2001



FUTURE GOALS

It is anticipated that ASAP activities will grow in the coming years with increased soundings in all ocean areas. To this end the SOT aims to arrange for and use funds and contributions in kind needed for the procurement, implementation and expansion of the programme. It will also focus on the following goals:

- To work effectively with countries adjacent to data-sparse ocean areas to find potential ASAP operators with routes through these areas;
- To encourage joint ventures to implement new ASAP observing programmes;
- To continuously analyse, evaluate and implement more cost-effective means to communicate ASAP data;
- To provide advice and assistance to new ASAP operators;
- To improve efficiency in communicating data;
- To design more robust, automated and deck-based launching devices.



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