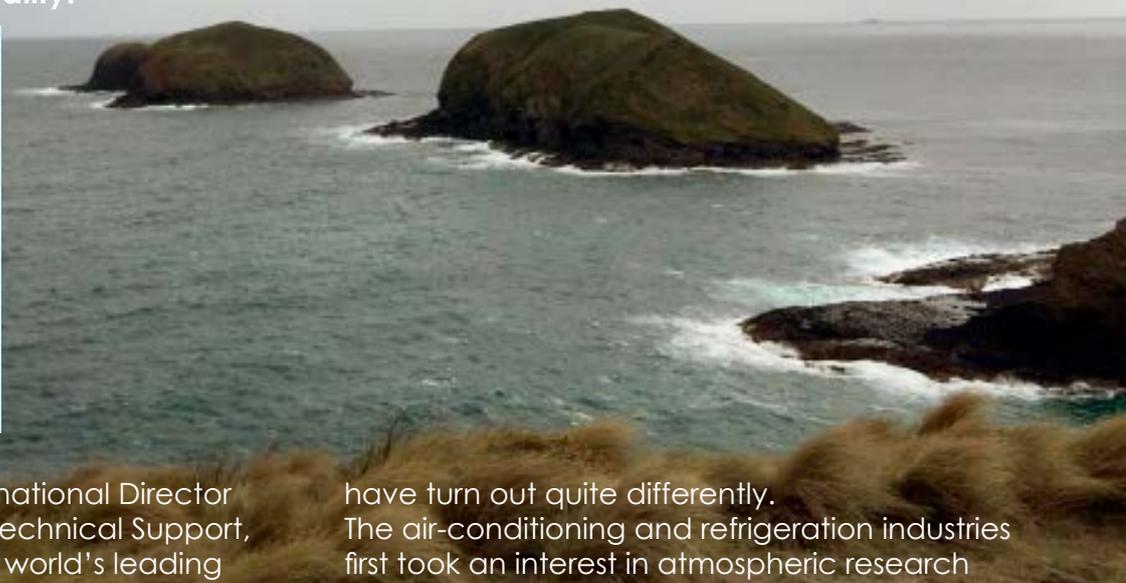


# A visit to Cape Grim – where the news is far from grim **EXCLUSIVE**

This is Cape Grim – one of the cleanest locations on earth from which to measure air quality.



Mark Mitchell, Unicla International Director of Global Marketing and Technical Support, recently visited one of the world's leading atmospheric research centres located at Cape Grim on the remote North West coast of Tasmania. The centre is operated by the Australian Bureau of Meteorology and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

In his capacity as a director of Refrigerant Reclaim Australia (RRA), Mark has been able to participate in the ongoing funding and support provided to the Cape Grim facility by RRA. The research centre was established in 1976 operating from a caravan originally used on the Apollo 13 mission and donated by NASA.

Since then the station has grown considerably in size and capability into a world class facility and one of the leading figures behind its success, world renowned scientist and CSIRO fellow Dr Paul Fraser, told Mark and the RRA directors and executive members during the visit, that without the industry and funding support from RRA, the fate and long term success of the station could



**Dr Paul Fraser**

have turn out quite differently. The air-conditioning and refrigeration industries first took an interest in atmospheric research in the late 1980s when it became apparent emissions of CFC refrigerants were destroying the ozone layer, and something had to done.

Through industry motivation, the international Montreal Protocol and some government legislation in Australia, RRA was formed as a product stewardship scheme to promote non-emissions of CFC refrigerants and to take care of all the contaminated and unwanted refrigerants that would normally find their way into the atmosphere.

In return the Cape Grim research facility developed its capability to measure emission levels of a wide variety of gases and unwanted substances in our atmosphere, including the prolific ozone depleting substances (ODS) such as CFCs that RRA is responsible for. So even in the early stages of its formation, the directors of RRA decided assistance should be provided to the CSIRO and the Cape Grim facility to ensure this very worthwhile research continued.

The results have allowed all interested stakeholders, particularly government and environmental groups responsible for the health of our atmosphere, to gain access to valuable measurements showing the movements and fluctuations of both natural and synthetic gases in our stratosphere.

From RRA's perspective, Cape Grim has been able to measure the results of CFC emission reductions from industry, and Paul Fraser said it is one of the best good new stories so far by confirming CFC-12 peak emissions are down by 90% since 1988, and peak atmospheric concentration levels have fallen 5% since 2003-2004.

## CFC EMISSIONS ON THE DECLINE

Recent emissions are better still, showing a 7% decline per year, and quite significant considering the former popularity of CFC-12 when it was the most commonly used refrigerant used in air conditioners and refrigerators globally.

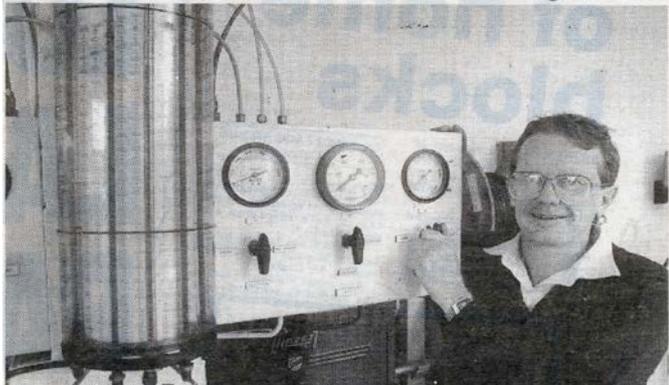
This reduction in CFC-12 and other CFC levels has contributed to a decline in chlorine levels in the stratosphere of 10% since 1990s, and is expected to reach 1980 levels by 2045, which means ozone is able to re-grow in our atmosphere.

Paul Fraser confirmed the Cape Grim station is already measuring ozone recovery above Australia and Antarctica.

Mark recalls his own efforts in this result when in 1988 his company SuperCool built the first recovery system in Australia designed to remove CFC-12 from motor vehicles during servicing, a practice which became mandatory by legislation some years later.

'It made perfect sense really, even before

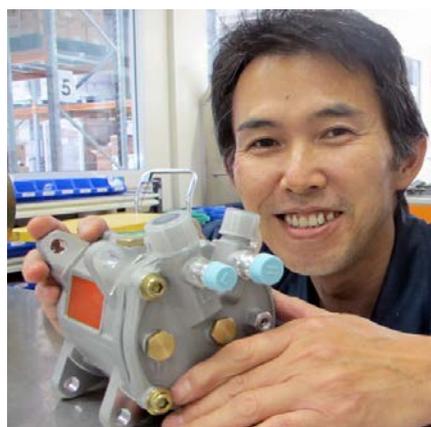
## Local product helps protect ozone layer



we knew everything about chlorine and the relationship to ozone, we were letting all this product into the atmosphere which was money wasted on one hand, but on the other we somehow instinctively knew nothing should go into the atmosphere unnecessarily,' Mark said.

## Unicla leads the way with new refrigerant testing

'In addition to stopping emissions of CFC-12, our industry started looking at alternatives pretty quickly, and once again both our companies SuperCool and Unicla were at the forefront of this in mobile air conditioning systems.



'We tested and built some of the first HFC-134a systems and compressors in 1992, which of course was a major part of the ozone depleting solution but has now presented

itself as a contributor to the growing greenhouse gas issue,' Mark added.

This is where Cape Grim comes in again, Mark said.

The fantastic work at this research station includes measuring all the greenhouse gas (GHG) emissions such as carbon dioxide, methane and nitrous oxide created from farming, power generation, motor vehicle tailpipes and manufacturing industries.

The synthetic greenhouse gas (SGG) emissions such as hydrofluorocarbons (HFCs) coming from common applications such as aerosols, foam blowing air-conditioning and refrigeration systems, that would have once been ozone depleting substances (CFCs), are also now included due to their contribution to overall greenhouse emissions and their unfortunate growth in the atmosphere in recent years.

Paul Fraser told Mark and the RRA group that in the last 50 years about 81% of GHG emissions have come from fossil fuel burning and agriculture and about 19% from the synthetics, and while the main synthetic today (HFC) is growing globally, Cape Grim has measured a decline in emissions from Australia, which is

another bit of good news resulting from good work practices and recovery procedures by industry.

Mark said the air-conditioning and refrigeration industry acknowledges this point and confirmed that his engineering team at Unicla began testing compressors operating with the new HFO-1234yf refrigerant four years ago and are now ready for the market as the automotive industry prepares to migrate once again to a new family of refrigerants.

The HFOs are another giant step for the automotive air-conditioning industry, classified as class A2L and mildly flammable, but having a global warming potential (GWP) of less than 1 with no contribution to GHG emissions at all.

## Enough to keep you awake at night

Overall Mark said the Cape Grim visit was very

inspiring but the stand-out event was viewing the banner displayed in the foyer at the station showing the greenhouse concentrations in the atmosphere taken from the combined measurements at Cape Grim and the ice cores at Law Dome in Antarctica.

It shows how since 100 AD the concentrations of methane, carbon dioxide and nitrous oxide are virtually constant for nearly 1900 years until mankind enters the industrial age in the mid-1800s.

'The rise in concentrations is so dramatic and steep at this point it is worthy of classification as a catastrophe. Looking at the banner, it's enough to keep you awake at night, it is vitally important all mankind does something about this, and as a component manufacturer and industry leader, our companies will do everything we can,' Mark said.

## It's enough to keep you awake at night

