

RV *Investigator* - scientific capabilities

Item	Description
12kHz transducer	Dual beam 12kHz on gondola for pinger and acoustic release operations
2 electrically driven seismic air compressors	Located in container hold with final air delivery to the working deck
24 bottle carousel and frame	The conductivity, temperature, and depth (CTD) system is a key item of the suite of scientific equipment to be installed permanently onboard the new vessel <i>Investigator</i> . The CTD system is essential for gathering data of depth, salinity, and temperature during voyages. This data is used by the majority of scientific communities represented as users of the <i>Investigator</i> , and is critical to the work of researchers conducting physical and biological oceanography.
ADCP (low and high frequency)	150kHz ADCP supplied by shipyard plus 75kHz system from the MNF
Aerosol laboratory	Laboratory space at the base of the foremast including racks and basic laboratory infrastructure for aerosol measurements
Aerosol sampling mast	6m high and 150mm diameter stainless air sampling tube on foremast
Air chemistry laboratory	Provision of space with racks, basic laboratory infrastructure for a variety of Air Chemistry measurements
Air sampling pump	The system shall consist of a side-channel regenerative blower vacuum pump, a variable frequency drive, a three-way Tee fitting, a butterfly valve, a ball valve with handle, a port fitting and a flow sensor.
Atmospheric nephelometer	Instrument is required for the measurement of atmospheric aerosol scattering coefficient by integrated nephelometry in real time.
Circulating clean seawater	Supply of clean seawater system including drop keel inlet, distribution, pump and provision to mount owner supplied SBE38 thermometer, Optode and flowmeter.
Deck (raw) seawater supply	Supply of raw seawater to working areas and selected lab areas
Drill rigs and vibrocore capacity	Provision for owner supplied winch and systems
Drop keel camera	Drop keel camera, able to rotate through 360°
Drop Keels	2 drop keels for acoustic systems, camera and voyage specific temporary sensors
Dual Axis Doppler	Skipper DL850 Dual axis Doppler log with gondola mounted transducer
Fish finding sonar	Kongsberg/Simrad SH90 Omni-directional sonar operating at 114kHz
Foredeck arrangement	Sampling booms
Foremast	Fitted to accommodate a variety of instruments and sensors
Full ocean depth multibeam system	Kongsberg/Simrad EM122 complete multibeam system with gondola mounted transducers (12kHz)
Fume cupboards and hazardous materials lockers	Fume cupboards and Hazmat lockers in selected labs
Gallows	Stern gallows and blocks
Heavy duty General Purpose towing	Supply of GP towing winch and wire
Laboratory fresh water	Hot and cold freshwater supplied to all labs and selected deck locations
Multi-frequency hydrophones	Total of four self-noise and ocean noise monitoring hydrophones supplied (plus owner supplied acquisition and processing system)
Multi-frequency scientific split beam echo sounders	Simrad EK60 system covering 18kHz, 38kHz, 70kHz, 120kHz, 200kHz and 333kHz
Net/cable storage >10m³	Provision for storage of owner supplied nets and instruments
Polarimetric weather research radar	The radar will operate unattended 24/7 - weather and safety permitting, and will also have the option to be remotely monitored.

RV Investigator - scientific capabilities

	C-band radar antenna systems and supporting infrastructure shall be designed to be installed on the platform that is to be provided on top of the ships central mast.
Shallow water multibeam scientific and fisheries echo sounder system	Kongsberg/Simrad ME70 complete system with a gondola mounted transducer
Shallow water multibeam scientific echo sounder system	Kongsberg/Simrad EM710 complete system with gondola mounted transducer (70kHz - 100kHz)
Ship side operations	Working deck with sheltered area/hangar accessible from aft or side science areas with 10t handling system
Side science area	Side deployment boom independent of the CTD deployment system to work with owner supplied equipment
Side towing booms (one each side)	Aft mounting towing booms
Sound velocity probe	Sound velocity probe to suit multibeam requirements
Stern A-frame	Stern A-frame
Stores crane	Foredeck stores crane with capability to support some foredeck science
Sub-bottom profiler integrated with 12kHz multibeam	Kongsberg SBP120 complete system supplied with gondola mounted transducers
Towed body operations	Towed body winch and electro-optical wire
Trace metal (TM) clean seawater	Supply of TM clean seawater system including a drop keel inlet, FPE distribution pump and outlets for TM clean water.
Trawl monitoring systems	Complete trawl monitoring system supplied, including bridge display, drop keel mounted sensors, net sensors (depth, opening and trawl eye) and trawl door spread sensors.
Trawl Ramp	Trawl Ramp with cover/cassette to provide full flat working deck to stern
Two wire trawl	Complete trawl winch system to wire end including winches, gallows, wire, net drum and net storage (Trawl doors and nets to be owner supplied)
Ultra short baseline (USBL) acoustic positioning system	Space reserved on starboard drop keel for owner supplied USBL system
Ultra-pure fresh water	Provision to connect owner supplied water purification units in most laboratories
Ultrapure water purification systems	The water purification systems are essential for gathering data of depth, salinity and temperature during voyages.
Utility crane	2 aft deck utility cranes
Utility winches working decks	2 x 10t utility Gilson winches for aft deck operations
Various laboratories	<ul style="list-style-type: none"> • 3 general purpose laboratories • Controlled temperature lab • Specialist underway seawater analysis lab • Hydrochemistry lab • Preservation lab • Air chemistry lab – see below • Aerosol lab – see below • Data processing lab
Vertical sediment grabs/light side towing	Supply of winch and synthetic rope
Workboat	6m inboard diesel jet-drive workboat for general purpose science use
Working air systems	Supply of 7 bar compressed air to labs and working decks
Working Crane	25t working crane to support science operations