Ref Number: CEaS/PG/ 13-05-2016

Please send your best quotation for the following two items along with the required accessories on C.I.F. Bangalore basis to the undersigned. These items would be used for stable carbon, oxygen and hydrogen isotope analysis on a mobile platform and are designed to improve the analytical capability of an already existing Isotope Ratio Mass Spectrometry Laboratory at the Centre for Earth Sciences, Indian Institute of Science (IISc), Bangalore. Your quotations should clearly indicate the terms of delivery, delivery schedule, entry tax, payment terms, installation schedule etc. The filled tender should be submitted in two separate and sealed envelopes: one containing the technical bid and the other containing the commercial bid

Both the bids (technical and commercial) should be put in a single cover, which should reach the undersigned, duly signed on or before 10 AM, 1st June, 2016.

The technical bid must include details of technical specifications of the equipment along with sample quality details and the laboratory space and other infrastructure requirements. However, the price components should NOT be shown in this bid. Also you should enclose a compliance certificate along with the technical bid. The commercial bid, on the other hand, must include the price of each of the items indicating the break-up of the price structure as per following requirements:

(i) The price of the goods quoted on C. I. F. (Bangalore)
(ii) The charges for insurance and transportation from warehouse to IISc warehouse.
(iii) The agency commission charges if any
(iv) The installation and commissioning charges, if any.
(v) Please include a table indicating compliance with the specifications indicated below.
(vi) Please indicate the warranty period.
(vi) Post-warranty Annual Maintenance Contract for five years to be quoted separately.
(vii) Computer and UPS should be quoted in INR and should be included in the quotation.

Terms and conditions:

1. The vendor should have a track record of having previously supplied similar equipment in India to similar institutions.
2. The vendor should have qualified technical service personnel for maintenance of the equipment based in Bangalore, India.
3. The payment would be through letter of credit with 80% LC payment against dispatch of documents and 20% after installation and commissioning of items.
4. The delivery period should be specifically stated
5. The indenter IISc reserves the right to withhold placement of final order. The right to reject all/any of the quotations and to split up the requirement and relax any or all of the above conditions without assigning any reason is reserved
6. Withholding tax, if applicable, will be deducted from LC.

Both documents should be addressed to:
The Chairman,
Centre for Earth Sciences,
Indian Institute of Science
Bangalore 560012.

and the single sealed cover should be mailed to

Prosenjit Ghosh,
Associate Professor
Centre for Earth Sciences,
Indian Institute of Science
Bangalore – 560012.
INDIA
Email: pghosh@ceas.iisc.ernet.in, ghoshceas@gmail.com
Phone: 080-22932599

A. Near or mid-infrared laser based liquid water & water vapor Isotope Analyzer – Quantity: 01

Description	Specifications
Technique	The analyzer must operate using any of the following techniques, such as Cavity Ring Down Spectroscopy (CRDS) or Off-Axis Integrated Cavity Output Spectroscopy (OA-ICOS),WS-CRDS, absorption spectroscopy or equivalent with latest features.
Application	1. The system should simultaneously measure isotopic ratios $\delta^{18}O$ ($^{18}O/^{16}O$) and δD (D/H) in water samples (Liquid and vapor phases). 2. The system should be capable of analyzing minimum of 100 unknown liquid water samples per day with 6 injections per sample using an auto sampler. 3. The instrument should be capable of analyzing almost all type of water samples like fresh water, saline water & snow melt with required precision and accuracy. 4. The instrument should be capable of measuring online water vapor isotopes $\delta^{18}O$ ($^{18}O/^{16}O$) and δD (D/H) in field condition in different parts of India. The equipment should also have capability of intermittent standard measurements automatically for calibration purpose. 5. The instrument should have Water vapor Standards delivery module which must provide reliable water vapor calibrations for weeks or months 6. All the accessories for automatic water Sampling System to enable autonomous isotopic measurements from several water sources in the field. 7. The instrument should be capable of selecting measurements either in high throughput mode or in high precision mode. 8. The system is required to have authentic documentation/ certification for guaranteed, tested and certified accuracy, precision and drift specifications (if any) for $\delta^{18}O$ and δD. 9. The analyzer must be capable of measuring small volume samples devoid of any memory effect. 10. The data processing software should be capable of a) Calibration of isotope ratios using standard measurements made during the sample run. b) Graphically display all results, and fully diagnose instrument operation and faults if any. c) Detecting spectral interferences in measured samples. 11. Consumables like Vials, Septas, Syringes, and Filters etc. for smooth operation of the equipment for 15,000 samples
Performance Specifications	Required Precision (1 σ) and accuracy are: For liquid water: $\delta^{18}O \leq \pm 0.05‰$ $\delta^{17}O \leq \pm 0.05‰$ $\delta D \leq \pm 0.3‰$ Precision should be demonstrated during installation with the laboratory standards as claimed in the quotation/offer.
Operating Requirements	a) Ambient Humidity: 0-100% RH (non-condensing) b) Operating Temperature: 0 to 45 °C c) Sample temperature: 0 to 45° C d) Salinity range: up to 10% e) Measurement rate: less than 1 hz. f) Power requirements: 220 ± 30V 50 Hz, Single phase AC. g) Generated data should be MS Windows compatible.

	h) System Outputs: Digital (RS 232), Ethernet, USB i) Data Storage: Internal Hard drive; Display 12" color TFT, j) Inlet/Outlets: Swagelok fittings.
Other requirements	1. All latest software required to run the computer and the system during the warranty period should be provided without any additional cost 2. All the quoted features and specifications should be supported by printed catalogues/literature/pamphlets. 3. Compliance statement based on factory analysis should be enclosed along with the offer. 4. Documentary proof/catalogue of different modules/published technical notes should be provided to support the quoted specifications and applications. 5. The Instrument and associated systems should be upgradable for future requirements/improvements in operation. 6. Softcopies (whenever applicable) and hard copies of instrument manuals, service manuals and certificates for analytical capabilities should be provided. 7. List of important spare parts, consumables and accessories with their part number and price should be provided. 8. The company should give an undertaking that the necessary components, spares, consumables or any other item required for the proper working of the equipment should be supplied for at least 5 years from the date of installation of the equipment. 9. Branded laptop and inkjet printer should be quoted. (Configuration-Laptop: Intel Core i7 Processor, 14-15" TFT color display, 4 GB RAM, 500GB SATA Hard Disk, DVD Writer, 4MB Cache, HD Graphics, USB 2.0, Li-ion battery, Genuine Windows-8 Professional OS, onsite one year warranty; Printer: Inkjet single function color printer (HP Officejet Pro 8000 or equivalent). 10. Successful commissioning, installation, demonstration of use, trouble shooting and maintenance of specific components at Center for Earth Sciences, IISc, Bangalore should be done within two weeks of delivery. 11. Successful demonstration of instrument performance in terms of precision and accuracy of isotope ratios as mentioned in the document/compliance certificate mentioned by the vendor.
Warranty & Service support	Supplier should provide comprehensive onsite warranty (including parts and labour) for 3 years (36 months) after successful installation of the system. The supplier should also quote for annual maintenance contract on a regular basis after the warranty period. The supplier should also assure guaranteed supply of spares for at least 10 years. It should include minimum two preventive visits per year or all breakdown calls whichever is negotiated. Instrument down time should not be more than two weeks in normal circumstances. In case of delay, extra down time will be added to the warranty period.
Training & other specific requirements	a) On site basic training for 5 working days on operational aspect of instrument for water sample measurements, usage of software for sample analysis, two weeks advance training on application aspects, maintenance, troubleshooting etc. for one person at the Center for Earth Sciences, IISc, Bangalore without any additional cost. b) It is required to supply supporting data and proper documentation (worksheets, test reports, credential etc) along with a compliance statement. c) User list should be provided with contact information.

B. Infrared laser based CO_2 Isotope Analyzer – Quantity: 01

Description	Specifications
Technique	The analyzer must operate using any of the following technique, such as (Cavity Ring Down Spectroscopy(CRDS) or Off-Axis Integrated Cavity Output Spectroscopy (OA-ICOS) or WS-CRDS or equivalent with latest features including absorption spectroscopy in mid-infrared for isotope ratio analysis.
Application	1. The system should be capable of simultaneous measurement of $\delta^{13}C$, $\delta^{18}O$ and mole fraction of CO_2 in CO_2 samples. 2. Continuous flow measurements over a rated range of 250-2500 (or higher) ppmv CO_2 in air. 3. Simultaneous measurements of water vapor to enable correction of isotopic ratios and CO_2 mole fraction to dry values. 4. The system should be capable of Automatic determination of $\delta^{13}C$, and CO_2 on dry mole per mole basis – the spectroscopic analysis should correct for water vapor dilution and line broadening effects 5. Syringe injection port to provide capability for discrete sample measurements (up to 100% CO_2) 6. Multiport inlet unit manifold should be capable of sourcing sample from up to 16 separate sources. Driver software enabling fully integrated, programmable selection from all of the external sources. 7. The instrument should be free from interfering effects from other gases, such as methane, hydrocarbons etc. 8. The Instrument should be able to measure stand-alone samples via manual injection using syringe (off-line collection). 9. The vendor must supply proper documentation/ certification for guaranteed, tested & certified accuracy and drift specifications (if any) for $\delta^{13}C$. 10. The post analysis software should graphically display all results, and fully diagnose instrument operation. Generated data should be MS Windows compatible. 11. Multi-channel data logging system for synchronizing and recording serial (RS-232) outputs from the analyzer and other devices (e.g., GPS, anemometers) 12. External dynamic dilution system to allow measurements of higher concentration samples by automatically diluting the sample with zero air (increase the upper measurement range by up to 100 times 13. Calibration reference gas for CO_2 concentration/isotope ratio measurement from NOAA ESRL should be included. Values of CO_2 concentration and isotopic ratios, i.e., $\delta^{13}C$ and $\delta^{18}O$ (similar to that of air) should be quoted and original certificate has to be provided.
Performance Specifications	**Maximum Drift** (15-minute average at STP over 24 hours) $\delta^{13}C \leq 1‰$ or better **Measurement Range** CO_2: 200-1000 ppm (aprox.) **Operational Range** CO_2: 0-2,000 ppm (to 100% with Dynamic Dilution System) H_2O: 0-70,000 ppm (non-condensing) **Repeatability/Precision** $\delta 13C \leq 0.10‰$ $\delta 18O \leq 0.08‰$ for pCO2: <0.05 ppm or better operating range: 350-450 ppm

	Precision should be demonstrated with the laboratory standards as claimed in the quotation/offer. **Response Time (flow time through measurement cell)** ≤ 5 seconds (with standard vacuum pump)
Operating Requirements	a) Ambient Humidity: 0-100% RH (non-condensing) b) Operating Temperature: 0 to 45 °C c) Sample temperature: 0 to 45° C d) Power requirements: 220 ± 30V 50 Hz, Single phase AC. e) Generated data should be MS Windows compatible. f) System Outputs: Digital (RS 232), Ethernet, USB g) Data Storage: Internal Hard drive; Display 12" color TFT, h) Inlet/Outlets: Swagelok fittings.
Other requirements	1. All latest software required to run the system should be provided without any additional cost 2. All the quoted features & specifications should be supported by printed catalogues/literature/pamphlets. 3. Compliance statement should be enclosed along with the offer. 4. Documentary proof/catalogue of different modules /published technical notes should be provided to support the quoted specifications and applications. 5. The Instrument(s) should be upgradable for additional future requirements or improvements. 6. Softcopies (whenever applicable) and hard copies of instrument manuals, service manuals & certificates for analytical capabilities should be provided. 7. List of important spare parts, consumables and accessories with their part number and costing should be provided. 8. The company should give an undertaking that the necessary components, spares, consumables or any other item required for the proper working of the equipment should be supplied for at least 5 years from the date of installation of the equipment. 9. Branded laptop and inkjet printer should be quoted. (Configuration-Laptop: Intel Core i7 Processor, 14-15" TFT color display, 4 GB RAM, 500GB SATA Hard Disk, DVD Writer, 4MB Cache, HD Graphics, USB 2.0, Li-ion battery, Genuine Windows-8 Professional OS, onsite one year warranty; Printer: Inkjet single function color printer (HP Officejet Pro 8000 or equivalent). 10. Successful commissioning, installation, demonstration of use, trouble shooting and maintenance of specific components at the Center for Earth Sciences, IISc, Bangalore should be done within two weeks of delivery. 11. Successful demonstration of instrument performance in terms of precision of isotope ratios as mentioned in this document/compliance certificate mentioned by the vendor.
Warranty & Service support:	Supplier should provide comprehensive onsite warranty (including parts and labour) for 3 years (36 months) after successful installation of the system. The supplier should also quote for annual maintenance contract on a regular basis after the warranty period. The supplier should also certify to provide guaranteed supply of spares for at least 10 years. It should include minimum two preventive visits per year or all breakdown calls. Instrument down time should not be more than two weeks in normal circumstances. In case of delay extra down time will be added to the warranty period.
Training & other specific requirements	a) On site basic training of 5 working days on operational aspect of instrument for water sample measurements, usage of software for sample analysis, two weeks advance training on application aspects, maintenance, troubleshooting etc. for one person at the Center for Earth Sciences, IISc, Bangalore without any additional cost.

	b) It is required to supply supporting data and proper documentation (worksheets, test reports, credential etc) along with a compliance statement. c) User list should be provided with contact information.