The first Indian Arctic multi-sensor mooring (IndARC) observatory in Kongsfjorden of Arctic waters was established in July 2014. The Ministry of Earth Sciences evolved a unique moored observatory ‘IndARC’ with suite of sensors for physico-chemical and oceanographic in situ long-term data collection. The Arctic Ocean plays an important role in governing the earth’s climate and also faithfully records its past climatic history and represents a significant gap in ocean observations. There exists a hypothesis that Indian monsoon is related to the Arctic regions. To prove or disprove this, it is necessary to have a mooring in the Arctic region, measuring the oceanographic parameters on a continuous basis.  Also, the ambient noise in the region will pave the way to understanding the ice melting process, and long term data would indicate climate change. With this background, an indigenously designed and installed observatory IndARC, for the first time, collected various parameters from July 2014 to July 2015, further on in 2016 and 2017. The moorings currently are equipped with acoustic transducers apart from conventional sensors like ADCP, DO sensor, etc. The uniqueness of this system, the challenges faced and results from data collected will be presented.