Feb
2021

समाचार पत्रों से चयित अंश
Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

खंड : 46 अंक : 28 09 फरवरी 2021

Vol.: 46 Issue : 28 09 February 2021

रक्षा विज्ञान पुस्तकालय
Defence Science Library
रक्षा वैज्ञानिक सूचना एवं प्रलेखन केंद्र
Defence Scientific Information & Documentation Centre
मेटकॉफ हाउस, दिल्ली - 110 054
Metcalfe House, Delhi - 110 054

CONTENTS

DRDO News

DRDO Technology News

Press Information Bureau
Government of India

Ministry of Defence

Mon, 08 Feb 2021 6:24PM

MoU between DRDO and IISc for Joint Advanced Technology Program

DRDO today signed a Memorandum of Understanding (MoU) with Indian Institute of Science (IISc) Bengaluru for creation of JATP–Center of Excellence (JATP – CoE) in the premises of IISc to expand the scope and objective of existing Joint Advanced Technology Program. Dr. G Satheesh Reddy, Secretary DDR&D & Chairman DRDO and Prof Govindan Rangarajan, Director IISc signed the MoU at a virtual event held in DRDO Bhawan, New Delhi. The JATP-CoE located in the campus of IISc, Bengaluru will enable Directed Basic & Applied Research and engage with premier research institutes through multi-disciplinary & multi-institutional collaboration. The focused research efforts at the centre will lead to realization of indigenous technologies in the critical areas to develop state of art technologies.

As per the MoU, DRDO will support JATP in equipping it with advanced and unique research facilities that will enable the faculty and scholars to conduct advanced research. DRDO will facilitate for advanced research to utilize technology outcome in the futuristic applications. DRDO scientists and engineers will work with the academic research faculty and scholars in addressing challenging scientific problems to find an innovative solution in advanced areas of research namely Advanced Aerospace Systems & Materials, High Temperature Materials, Micro & Nano Systems Science and Technology, Artificial Intelligence & Robotics, Quantum Technologies etc. JATP-CoE may also involve other premier institutions in the country, based on their research strengths.

Dr. G. Satheesh Reddy highlighted that JATP was created by Late Hon'ble President of India Dr. APJ Abdul Kalam in 1983 (while leading IGMDP program), where the DRDO scientists actively collaborated with the faculty of IISc to work on various missile technologies. He further emphasized on expanding research activities for defence & security by incorporating the future technology requirements of other DRDO technology clusters and associated laboratories. He also briefed about the long term research & technology development happening and maturing at Center of Excellences created by DRDO at various academic institutes.

Director IISc also appreciated DRDO's decision for expanding the JATP-CoE and assured for active involvement of IISc for development of futuristic technologies.

https://pib.gov.in/PressReleasePage.aspx?PRID=1696259

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Mon, 08 Feb 2021 6:24PM

संयुक्त उन्नत प्रौद्योगिकी कार्यक्रम के लिए डीआरडीओ और आईआईएससी के बीच एमओयू

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने मौजूदा संयुक्त उन्नत प्रौद्योगिकी कार्यक्रम के दायरे और उद्देश्य का विस्तार करने के लिए आईआईएससी के परिसर में जेएटीपी-सेंटर ऑफ एक्सीलेंस (जेएटीपी- सीओई) केनिर्माण के लिए भारतीय विज्ञान संस्थान (आईआईएससी) बेंगलुरु के साथ आज एक समझौता ज्ञापन (एमओयू) पर हस्ताक्षर किए। डीडीआर एंड डीडीओ के सचिव डॉ जी सतीश रेड्डी और रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) के अध्यक्ष औरभारतीय विज्ञान संस्थान (आईआईएससी) के निदेशक प्रो गोविंदन रंगराजन ने नई दिल्ली के डीआरडीओ भवन में आयोजित एक आभासी कार्यक्रम में समझौता ज्ञापन परहस्ताक्षर किए । भारतीय विज्ञान संस्थान (आईआईएससी), बेंगलुरु के परिसरमें स्थित संयुक्त उन्नत प्रौद्योगिकी कार्यक्रम-उत्कृष्टता केंद्र (जेएटीपी-सीओई) निर्देशित बेसिक एंड एप्लाइड रिसर्च को सक्षम बनाएगा औरबहु-अनुशासनात्मक और बहु-संस्थागत सहयोग के माध्यम से प्रमुख अनुसंधानसंस्थानों के साथ जुड़ सकेगा । केंद्र में केंद्रित अनुसंधान प्रयासों सेअत्याधुनिक प्रौद्योगिकियों को विकसित करने के लिए महत्वपूर्ण क्षेत्रोंमें स्वदेशी प्रौद्योगिकियों की प्राप्ति होगी।

समझौता ज्ञापन (एमओयू) के अनुसार, रक्षा अनुसंधान एवं विकाससंगठन (डीआरडीओ) संयुक्त उन्नत प्रौद्योगिकी कार्यक्रम (जेएटीपी) को उन्नतऔर अनूठी अनुसंधान सुविधाओं से लैस करने में सहयोग करेगा जिससे संकाय और विद्वान उन्नत स्तर का अनुसंधान करने में सक्षम होंगे। रक्षा अनुसंधान एवंविकास संगठन (डीआरडीओ) के वैज्ञानिक और इंजीनियर अनुसंधान के उन्नतक्षेत्रों में एक अभिनव समाधान खोजने के लिए चुनौतीपूर्ण वैज्ञानिक समस्याओं के समाधान में अकादमिक अनुसंधान संकाय और विद्वानों के साथ काम करेंगे, जैसे उन्नत एयरोस्पेस सिस्टम एंड मैटेरियल्स, हाई टेम्परेचरमटेरियल, माइक्रो एंड नैनो सिस्टम्स साइंस एंड टेक्नोलॉजी, आर्टिफिशियल इंटेलिजेंस एंड रोबोटिक्स, क्वांटम टेक्नोलॉजीज इत्यादि। संयुक्त उन्नतप्रौद्योगिकी कार्यक्रम- उत्कृष्टता केंद्र (जेएटीपी-सीओई) अपनी शोधशक्तियों के आधार पर देश के अन्य प्रमुख संस्थानों को भी शामिल कर सकते हैं।

डॉ जी सतीश रेड्डी ने बताया कि जेएटीपी को भारत के दिवंगतमाननीय राष्ट्रपति डॉ एपीजे अब्दुल कलाम ने 1983 (आईजीएमडीपी कार्यक्रम कानेतृत्व करते हुए) बनाया था, जहां रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) के वैज्ञानिकों ने विभिन्न मिसाइल प्रौद्योगिकियों पर काम करनेके लिए भारतीय विज्ञान संस्थान (आईआईएससी) के संकाय के साथ सक्रिय रूप से सहयोग किया। उन्होंने रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) के अन्यप्रौद्योगिकी समूहों और संबद्ध प्रयोगशालाओं की भावी प्रौद्योगिकीआवश्यकताओं को शामिल करते हुए रक्षा और सुरक्षा के लिए अनुसंधान गतिविधियों के विस्तार पर जोर दिया । उन्होंने विभिन्न अकादमिक संस्थानों में रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) द्वारा बनाए गए उत्कृष्टता केंद्रोंमें हो रहे दीर्घकालिक अनुसंधान और प्रौद्योगिकी विकास और परिपक्व होने केबारे में भी जानकारी दी।

निदेशक भारतीय विज्ञान संस्थान (आईआईएससी) ने भी संयुक्तउन्नत प्रौद्योगिकी कार्यक्रम- उत्कृष्टता केंद्र (जेएटीपी-सीओई) केविस्तार के लिए रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) के फैसले कीसराहना की और भविष्य की प्रौद्योगिकियों के विकास के लिए भारतीय विज्ञानसंस्थान (आईआईएससी) की सक्रिय भागीदारी का आश्वासन दिया।

https://pib.gov.in/PressReleasePage.aspx?PRID=1696316

Press Information Bureau
Government of India

Ministry of Defence

Mon, 08 Feb 2021 4:01PM

MoD and BEL sign contract for procurement of Software Defined Radio (Tactical) worth over Rs 1,000 crore

Ministry of Defence (MoD) and Defence Public Sector Undertaking (DPSU) Bharat Electronics Limited (BEL) have signed a contract for procurement of Software Defined Radio Tactical (SDR-Tac) worth over Rs 1,000 crore in New Delhi on February 08, 2021.

The SDR-Tac, jointly designed and developed by Defence Electronics Applications Laboratory (DEAL) of Defence Research & Development Organisation (DRDO) through a consortium of domestic agencies and industry, comprising Weapons and Electronics Systems Engineering Establishment (WESEE), BEL, Centre for Artificial Intelligence & Robotics (CAIR) and Indian Navy will bring strategic depth to the Armed Forces. The delivery will take place within three years. The BEL is already supplying SDR-Naval Combat (NC) and SDR-Air is under user evaluation trial. The DRDO and BEL are planning to provide latest SDR with security grading to the Armed Forces.

The SDR-Tac is a four Channel Multi-mode, Multi Band, 19'' Rack mountable, ship borne Software Defined Radio system. It is intended to serve ship-to-ship, ship-to-shore and ship-to-air voice and data communication for network centric operations. It supports simultaneous operation of all the four channels covering V/UHF and L Band. This SDR system houses multiple types of waveforms for narrow band and wide band applications. The MANET waveforms are available in UHF and L-Band to support adhoc networking feature for net centric operations. User evaluation trials covering exhaustive harbour phase and sea phase trials were completed successfully during May to June 2018 at Visakhapatnam for all waveforms including V/UHF and L-Band MANET waveforms under different network configurations.

Interoperability trials were also successfully carried out with all other form factors covering Airborne SDR-AR on board Dornier Aircraft, SDR-Tac on board INS Kirch in sailing mode, SDR-Manpack and SDR-Handheld. All the aspects were evaluated successfully by all user agencies of Navy and clearance was accorded for procurement.

The Armed forces are in need of transition from the single purpose radio of the past to more flexible Software Defined Radios (SDRs) to serve most of their wireless communication needs. These SDRs will be backward compatible with existing Indian radios. Different Service groups require different form factor radios for specific platforms and waveforms/applications. The SDRs allow use of common waveform/application implementation methods for different form factors. They also allow implementation of futuristic waveforms on the same hardware using software programmability, thus ensuring longer life and savings on cost.

A key factor in SDRs is that software programmability allows easy changes of the radio's fundamental characteristics such as modulation types, operating frequencies, bandwidths, multiple access schemes, source and channel coding/decoding methods, spreading/de-spreading techniques and encryption/decryption algorithms. Traditional hardware-centric radios require hardware changes to modify these fundamental characteristics. Multiple types of radio equipment can be replaced with multi-mode, multi band, multi-role SDR's of suitable form factors.

https://pib.gov.in/PressReleasePage.aspx?PRID=1696177

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Mon, 08 Feb 2021 4:01PM

रक्षा मंत्रालय और बीईएल ने 1,000 करोड़रुपये से अधिक मूल्य के सॉफ्टवेयर डिफाइंड रेडियो (टैक्टिकल) के अधिग्रहणके लिए अनुबंध पर हस्ताक्षर किए

रक्षा मंत्रालय (एमओडी) और रक्षा में सार्वजनिक क्षेत्र केउपक्रम (डीपीएसयू) भारत इलेक्ट्रॉनिक्स लिमिटेड (बीईएल) ने दिनांक 8 फरवरी, 2021 को नई दिल्ली में 1,000 करोड़ रुपये से अधिक मूल्य के सॉफ्टवेयरडिफाइंड रेडियो टैक्टिकल (एसडीआर-टैक) की खरीद के लिए एक अनुबंध परहस्ताक्षर किए हैं।

एसडीआर-टैक जिसे घरेलू एजेंसियों और उद्योग के कंसोर्टियम-हथियार और इलेक्ट्रॉनिक्स सिस्टम इंजीनियरिंग प्रतिष्ठान (WESEE), बीईएल, सेंटर फॉर आर्टिफिशियल इंटेलिजेंस एंड रोबोटिक्स (सीएआईआर) और भारतीयनौसेना- के माध्यम से रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) की रक्षाइलेक्ट्रॉनिक्स अनुप्रयोग प्रयोगशाला (डीईएएल) द्वारा संयुक्त रूप सेडिजाइन और विकसित किया गया है, सशस्त्र बलों में रणनीतिक गहराई लाएगा। तीनसाल के भीतर डिलीवरी होगी। बीईएल पहले से ही एसडीआर-नेवल कॉम्बैट (एनसी)की आपूर्ति कर रहा है और एसडीआर-एयर उपयोगकर्ता मूल्यांकन परीक्षण केअंतर्गत है । डीआरडीओ और बीईएल सशस्त्र बलों को सुरक्षा ग्रेडिंग के साथनवीनतम एसडीआर प्रदान करने की योजना बना रहे हैं।

एसडीआर-टैक एक चार चैनल मल्टी-मोड, मल्टी बैंड, 19" रैकमाउंटेबल, शिप बोर्न सॉफ्टवेयर डिफाइंड रेडियो सिस्टम है। इसका उद्देश्यनेटवर्क सेंट्रिक ऑपरेशन्स के लिए जहाज से जहाज, जहाज से तट और जहाज से हवामें आवाज और डेटा संचार सुनिश्चित करना है। यह वी/यूएचएफ और एल बैंड कोकवर करने वाले सभी चार चैनलों के एक साथ संचालन को सपोर्ट करता है। इसएसडीआर प्रणाली में नैरो बैंड एवं वाइड बैंड अनुप्रयोगों के लिये विभिन्नप्रकार के वैवफॉर्मस होते हैं। नेट केंद्रित ऑपरेशंस के लिए एडहॉकनेटवर्किंग फीचर का समर्थन करने के लिए यूएचएफ और एल-बैंड में मैनेटवेवफॉर्म उपलब्ध हैं। नेट सेंट्रिक ऑपरेशन्स के लिये एडहॉक नेटवर्किंगफीचर का समर्थन करने हेतु यूएचएफ एवं एल-बैंड में मनेट वैवफॉर्मस उपलब्धहैं। मई से जून 2018 के दौरान विशाखापट्टनम में विस्तृत हार्बर फेज तथा सीफेज परीक्षणों को कवर करते हुए वी/यूएचएफ एवं एल-बैंड मैनेट वैवफॉर्म्ससमेत सभी वैवफॉर्म्स के लिये विभिन्न नेटवर्क विन्यासों में उपयोगकर्तामूल्यांकन परीक्षण सफलतापूर्वक पूरे किए गए ।

इंटरऑपरेबिलिटी ट्रायल भी सफलतापूर्वक अन्य सभी फॉर्मफैक्टर्स के साथ किए गए, जिनमें एयरबोर्न एसडीआर-एआर ऑन बोर्ड डोर्नियरएयरक्राफ्ट, एसडीआर-टैक ऑन बोर्ड आईएनएस किर्च इन सेलिंग मोड, एसडीआर-मैनपैक और एसडीआर-हैंडहेल्ड को शामिल किया गया। नौसेना की सभीउपयोगकर्ता एजेंसियों द्वारा सभी पहलुओं का सफलतापूर्वक मूल्यांकन किया गयाऔर अधिग्रहण के लिए मंजूरी दे दी गई।

सशस्त्र बलों को अपनी सभी वायरलेस संचार क्षमताओं के लिएपूर्व के एकल उद्देश्य रेडियो के स्थान पर अधिक लचीले सॉफ्टवेयर डिफाइंड रेडियो (SDRs) की ज़रूरत है। यह एसडीआर मौजूदा भारतीय रेडियो के साथबैकवर्ड कम्पेटिबल होंगे। सेना के विभिन्न अंगों को विशिष्ट प्लेटफार्मोंऔर तरंगों/अनुप्रयोगों के लिए विभिन्न स्वरूपों के रेडियो की आवश्यकता होतीहै। एसडीआर विभिन्न फॉर्म फैक्टर्स के लिए एक कॉमन वैवफॉर्म/ अनुप्रयोगकार्यान्वयन विधियों के उपयोग की इजाज़त देते हैं। वे सॉफ्टवेयर प्रोग्रामेबिलिटी का उपयोग करके एक ही हार्डवेयर पर भविष्य की वैवफॉर्म्सके कार्यान्वयन की अनुमति देते हैं, इस प्रकार बचत में सहायक होते हैं औरइस तकनीक के ज़रिए लंबा जीवन सुनिश्चित करते हैं।

एसडीआर में एक महत्वपूर्ण कारक यह है कि सॉफ्टवेयर प्रोग्रामेबिलिटी रेडियो की मूलभूत विशेषताओं जैसे मॉड्यूलेशन टाइप्स, ऑपरेटिंग फ्रीक्वेंसी, बैंडविड्थ, मल्टीपल एक्सेस स्कीम्स, सोर्स और चैनलकोडिंग/ डिकोडिंग तरीकों, स्प्रेडिंग/डी-स्प्रेडिंग तकनीकों औरएन्क्रिप्शन/डिक्रिप्शन एल्गोरिदम जैसे आसान बदलावों की अनुमति देती है।पारंपरिक हार्डवेयर केंद्रित रेडियो में इन मूलभूत विशेषताओं में परिवर्तनकरने के लिए हार्डवेयर परिवर्तन की आवश्यकता है। कई प्रकार के रेडियोउपकरणों को मल्टी-मोड, मल्टी बैंड, मल्टी-रोल एसडीआर के उपयुक्त फॉर्मफैक्टर्स के साथ प्रतिस्थापित किया जा सकता है ।

https://pib.gov.in/PressReleasePage.aspx?PRID=1696306

mint

Tue, 09 Feb 2021

Hanging glacier broke away from main part: DRDO on Uttarakhand glacier burst

- ***The glacier burst triggered an avalanche and a deluge that rippled through the Alaknanda river system in the upper reaches of the Himalayas***

A top scientist from the Defence Research and Development Organisation (DRDO) today said that prima facie it looks like a hanging glacier may have broken away from the main part which caused a massive flood in the Dhauli Ganga river on Sunday.

The sudden flood in the Dhauli Ganga, Rishi Ganga and Alaknanda rivers -- all intricately linked tributaries of the Ganga -- triggered widespread panic and large-scale devastation in the high mountain areas.

The glacier burst triggered an avalanche and a deluge that rippled through the Alaknanda river system in the upper reaches of the Himalayas.

Chamoli: Damaged Dhauliganga hydropower project after a glacier broke off in Joshimath causing a massive flood in the Dhauli Ganga river, in Chamoli district of Uttarakhand. (PTI)

Dr LK Sinha, Director, Defence Geo-Informatics Research Establishment, DRDO to said to news agency *ANI,* "Our team did an aerial survey of the glacier where incident took place in Chamoli. Prima facie it looks that a hanging glacier broke away from the main glacier and came down in the narrow valley."

"In the valley it formed a lake which burst later and caused the damage. The data is being analysed by our scientists in detail and if required, they would again go to get more details," Dr LK Sinha further added.

"After bridge collapsed in Raini village during glacier burst, around 13 villages have been cut off near areas such as Malari and Ghansali. There is heavy deployment of ITBP there near the India-China border. We have alerted them," said Manoj Rawat, ADG ITBP in Joshimath, Uttarakhand to *ANI*.

"Dropping of food supply underway in Lata and Raini villages. We are helping to take it further from there. Teams of the Indian Army, NDRF, ITBP, and state Police are working in collaboration," said Manoj Rawat.

Uttarakhand Director General of Police Ashok Kumar said efforts were focussed on rescuing 30-35 labourers trapped in a 250-metre tunnel at Tapovan. Two villages, including Raini, are cut off and essentials are being supplied to them. “A total of 153 people were missing from the two hydel projects at Raini and Tapovan… of which 10 bodies have been recovered while 143 are still missing," Kumar said, describing Sunday’s disaster as “one-time".

Meanwhile, three more bodies of the more than 140 missing after the glacier burst in Uttarakhand’s Chamoli district have been recovered, taking the death toll to 10, officials said on Monday, as massive efforts were underway to rescue at least 30 workers trapped in a tunnel at a power project site.

https://www.livemint.com/news/india/reason-for-glacier-burst-latest-updates-uttarakhand-drdo-chamoli-11612778658738.html

THE HINDU

Tue, 09 Feb 2021

Uttarakhand glacier disaster | ISRO, DRDO trying to ascertain exact cause, says CM

Preliminary estimates show that around 200 people are still missing, while 11 bodies have been found, he said

New Delhi/Dehradun: As multi-agency relief operations continue in Chamoli and adjoining areas of Uttarakhand, Chief Minister Trivendra Singh Rawat on Monday said a comprehensive analysis of the entire incident is being carried out to avert future tragedies, and asserted the immediate priority was to provide food and other assistance to the affected people.

In an interview with *PTI*, he said the incident appeared to have happened due to the breaking of the glacier and the Chief Secretary has been instructed to find out the real reasons.

Preliminary estimates show that around 200 people are still missing, while 11 bodies have been found, he said.

"A DRDO team is already studying the cause of this tragedy and we have also sought the help of ISRO scientists and experts for the same," he said.

After a comprehensive analysis is undertaken to find the reasons of this incident, "we will build an elaborate plan to avert any potential tragedy going forward", Mr. Rawat said.

Rescuers leave on a boat to search for bodies in the downstream of Alaknanda river in Rudraprayag, Uttarakhand. | Photo Credit: AP

Asked about the ongoing relief operations, he said they are continuing in full swing.

"We have made all arrangements needed for the rescue and relief operations along with providing healthcare facilities to the affected people. Most importantly, we are working on re-establishing the connectivity to the affected villages," he said.

Mr. Rawat said while the extent of economic loss will be ascertained in due course, the top most priority for now is to save as many lives as possible and to rehabilitate those who have got displaced from their homes.

Multiple agencies coordinated efforts to search for survivors on Monday, a day after a portion of the Nanda Devi glacier possibly burst through its banks at Joshimath, triggering an avalanche and a deluge that rippled through the Alaknanda river system in the upper reaches of the Himalayas.

https://www.thehindu.com/news/national/other-states/uttarakhand-glacier-disaster-isro-drdo-trying-to-ascertain-exact-cause-says-cm/article33782799.ece

TOI

Mon, 08 Feb 2021

Army, ITBP, DRDO teams rushed to Chamoli

New Delhi: The government on Sunday deployed a column of the Army's engineering task force and 200 personnel from the ITBP in Chamoli's glacier burst site for relief and rescue while a team from DRDO, monitoring avalanches, was being flown in for surveillance and reconnaissance.

"Around 12 people trapped in a tunnel have been rescued by the ITBP; while efforts are on to rescue others trapped in another tunnel, which is being coordinated by the Army and the ITBP. All out efforts are being made to ensure that all missing people are traced and accounted for," a home ministry statement said.

The armed forces swung into action with over 1,000 personnel, including medical teams, engineering task forces, divers, helicopters and aircraft, to help in the rescue operations.

The flash floods washed away a bridge constructed by the Border Roads Organisation (BRO) on the Malari axis, which provides crucial access to the Line of Actual Control with China. BRO director general Lt-Gen Rajeev Chaudhary has directed his officials to reconstruct the bridge as soon as possible by moving personnel and supplies to the area. "Some areas are cut off due to the bridge being washed away," an officer said.

"Two Cheetah helicopters of Army aviation are conducting aerial reconnaissance and other missions in the area. A control room has been established at Joshimath. A field hospital is also ready to receive casualties," the officer added.

The IAF has deployed two C-130J 'Super Hercules' aircraft and an AN-32 medium-lift plane as well as Mi-17 and Dhruv advanced light helicopters to airlift over 15 tonne emergency supplies and equipment as well as NDRF personnel to the Jolly Grant airport near Dehradun and other areas. The Navy has also kept over 50 marine commandos, including divers, on standby for rescue operations. Five teams of the National Disaster Response Force (NDRF) too were flown in from Hindon Air Force base, it added.

The National Crisis Management Committee (NCMC) headed by cabinet secretary Rajiv Gauba met here on Sunday and reviewed the situation arising out of the disaster in Chamoli's Reni village with hundreds feared killed in the glacial burst. A statement issued by the NCMC said the glacial burst washed away the Rishiganga small hydro project of 13.2 mw.

The flash flood also affected the downstream hydro project of NTPC at Tapovan on the river Dhauliganga, which is a tributary of the river Alaknanda," it added. NTPC's MD has been asked to reach the affected site immediately.

The NCMC, however, said there was no danger of downstream flooding and the rise in water level had been contained. There was also no threat to neighbouring villages. There is no rainfall

warning in the region for the next two days. The cabinet secretary also directed the agencies concerned to work in close coordination and extend all assistance to the state administration.
https://m.timesofindia.com/india/army-itbp-drdo-teams-rushed-to-chamoli/amp_articleshow/80740551.cms

नवभारत टाइम्स

Tue, 09 Feb 2021

Uttarakhand tragedy: उत्तराखंड के चमोली पहुंची DRDO की टीम, हवाई सर्वे कर बताई प्राकृतिक आपदा की वजह

डीआरडीओ (DRDO) ने उत्तराखंड के चमोली में आपदा स्थल का हवाई सर्वेक्षण (DRDO Aerial Survey) किया है। संगठन ने बताया कि प्रथम दृष्टि में आपदा का कारण एक हैंगिंग ग्लैशियर का टूटना है। उन्होंने बताया कि डेटा इकट्ठा कर लिया गया है और इसका विश्लेषण कर आपदा (Uttarakhand Disaster) के कारण का पता लगाया जाएगा।

By Raghavendra Shukla

हाइलाइट्स:

- ***उत्तराखंड के चमोली में प्राकृति आपदा का कारण जानने पहुंची DRDO की टीम***
- ***DRDO की टीम ने आपदा स्थल का किया हवाई सर्वेक्षण, बताई हादसे की वजह***
- ***DRDO ने कहा, पहली नजर में हादसा एक हैंगिंग ग्लैशियर के टूटने से हुआ लगता है***
- ***डेटा जुटाया गया है, इसका विश्लेषण कर हादसे के कारण का पता लगाया जाएगा: DRDO***

चमोली: उत्तराखंड (Uttarakhand Latest News) के चमोली जिले में प्राकृतिक आपदा (Disaster In Uttarakhand) ने रविवार को भारी तबाही मचाई। अब इस आपदा के कारणों का पता लगाने की कोशिश की जा रही है। इस बीच रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) की सोमवार सुबह उत्तराखंड पहुंची। संगठन के अधिकारियों ने आपदा स्थल का हवाई सर्वेक्षण किया है। उन्होंने कहा कि एरियल सर्वे (Aerial Survey Of Uttarakhand Disaster) के जरिए डेटा एकत्रित किया गया है, जिसका विश्लेषण करने के बाद हादसे के कारण को समझा जा सकता है।

उत्तराखंड में आपदा: 'जल प्रलय' के बाद इंडियन एयरफोर्स ने की रेकी, यह पता चला

डीआरडीओ (DRDO in Uttarakhand) के डिफेंस जियो-इन्फॉर्मेटिक्स रीसर्च इस्टैब्लिशमेंट के डायरेक्टर डॉ. एलके सिन्हा ने बताया कि उनकी टीम ने आपदा स्थल का हवाई सर्वेक्षण किया है। पहली नजर में यह ऐसा हादसा लगता है, जिसमें एक हैंगिंग ग्लैशियर अपने मेन ग्लैशियर से टूट गया है और संकरी घाटी में आ गिरा हो। उन्होंने आगे बताया कि इस टूटे हुए ग्लैशियर ने घाटी में एक झील बनाई होगी, जो बाद में फट गई और यह हादसा हो गया। सिन्हा ने कहा कि हमारे वैज्ञानिकों ने डेटा एकत्र कर लिया है और वे इसका विश्लेषण करेंगे। अगर और विवरण की जरूरत होगी तो हम और जानकारी लेने के लिए चमोली आएंगे।

क्या कारण बता रहे एक्सपर्ट?

उत्तराखंड में रविवार को आए जल प्रलय के कारणों का हालांकि, स्पष्ट तौर पर पता अभी नहीं चल पाया है। एक्सपर्ट्स ने अनुमान के मुताबिक, हादसे के कारणों की पहचान की है। नवभारत टाइम्स ऑनलाइन ने इस संबंध में विशेषज्ञों से बात भी की है। वाडिया इंस्टिट्यूट के हेड ऑफ डिपार्टमेंट डॉ. संतोष से इस घटना को विस्तार से बताते हुए

कहा कि पहली नजर में पता चला है कि शुक्रवार और शनिवार भारी बर्फबारी के कारण ऊपर की पहाड़ी चोटियों पर बर्फ जमा हो गई थी। रविवार को मौसम परिवर्तन होते ही बर्फ के ढेर खिसके और हिमस्खलन के रूप में नदी में आ गिरे। इसकी वजह से यह 'जलप्रलय' हुई।

डॉ. संतोष ने बताया कि उस स्थान पर झील का कोई स्रोत नहीं है, न ही कोई मौजूदगी। उन्होंने बताया कि साल 2013 में आई केदारनाथ आपदा और इस आपदा में अंतर है। केदारनाथ की आपदा मॉनसून में आई थी, जिस जगह से भीषण जल आया था उस स्थान पर झील थी लेकिन यह ठंड के दौरान आई हुई आपदा है। इस आपदा का मुख्य कारण भारी बर्फबारी और उस बर्फबारी का एवलांच में तब्दील होना ही माना जाएगा। डॉ. संतोष ने बताया कि दो टीमें रवाना हो चुकी हैं और जोशीमठ पहुंच चुकी हैं। दो से चार दिन में विस्तृत जांच रिपोर्ट सामने आएगी।

हिमालय में तेजी से सिकुड़ रहे हैं ग्लैशियर

वहीं, वाडिया इंस्टीट्यूट ऑफ हिमालयन जियोलॉजी के वरिष्ठ वैज्ञानिक मेहता ने बताया कि यह बहुत असामान्य हादसा है। सर्दियों में ग्लैशियर मजबूती से जमे रहते हैं। यहां तक कि ग्लैशियल झीलों की दीवारें भी सख्ती से बंधी होती हैं। इस तरह की बाढ़ आमतौर पर हिमस्खलन या भूस्खलन की वजह से होती है लेकिन इस मामले में ऐसा नहीं है। उन्होंने बताया कि हिमालय के ग्लैशियर दुनिया में कहीं और से ज्यादा तेजी से पीछे हट रही हैं लेकिन इसका बड़े पैमाने पर अध्ययन नहीं किया गया है।

मेहता ने कहा कि हमने ऊपरी ऋषिगंगा कैचमेंट और नंदा देवी क्षेत्र के ग्लैशियरों में विविधताओं की मैपिंग की है। इस इलाके में अधिकांश ग्लैशियर सिकुड़ते हुए पाए गए हैं। मेहता ने बीते साल एक शोध का नेतृत्व किया था, जिसमें ऊपरी ऋषिगंगा कैचमेंट इलाके के 8 ग्लैशियरों के सिकुड़ने की बात कही गई थी। शोध में बताया गया था कि उत्तरी नंदा देवी, चांगबांग, रमणी बैंक, बेठारटोली, त्रिशूल, दक्षिणी नंदादेवी, दक्षिणी ऋषि बैंक और रौंथी बैंक इलाके के ग्लैशियर बीते तीन दशकों में अपना 10 प्रतिशत द्रव्यमान खो चुके हैं। उपरी ऋषिगंगा जलग्रहण क्षेत्र (कैचमेंट) वही जगह है, जहां रविवार को ग्लैशियर फटा था।

202 लापता, 18 की मौत

बता दें कि रविवार को उत्तराखंड में आई आपदा में मरने वालों की संख्या 18 पहुंच गई है। वहीं 202 अन्य लोग लापता हैं। ऋषिगंगा घाटी के रैंणी क्षेत्र में हिमखंड टूटने से ऋषिगंगा और धौलीगंगा नदियों में अचानक आई बाढ़ से क्षतिग्रस्त 13.2 मेगावाट ऋषिगंगा और 480 मेगावाट की निर्माणाधीन तपोवन विष्णुगाड पनबिजली परियोजनाओं में लापता लोगों की तलाश के लिए सेना, भारत तिब्बत सीमा पुलिस (आइटीबीपी), राष्ट्रीय आपदा मोचन बल (एनडीआरएफ) के जवानों के बचाव और राहत अभियान में जुट जाने से तेजी आ गई है।

https://navbharattimes.indiatimes.com/state/uttarakhand/other-cities/drdo-team-conducted-an-aerial-survey-of-devastated-areas-in-chamoli-of-uttarakhand/articleshow/80751111.cms

जागरण

Tue, 09 Feb 2021

डीआरडीओ बनाएगा 500 बेड का आइसीयू

हरिद्वार: केंद्र सरकार की हरिद्वार कुंभ को लेकर जारी एसओपी (स्टैंडर्ड ऑपरेटिग प्रोसिजर) के अनुपालन में लक्सर रोड पर जगजीतपुर में डीआरडीओ (डिफेंस रिसर्च डेवलपमेंट आर्गेनाइजेशन) अत्याधुनिक चिकित्सीय सेवायुक्त 500 बेड का आइसीयू (इंटेंसिव केयर यूनिट) बनाने जा रहा है। यह बाद में यहां बनने वाले मेडिकल कॉलेज का हिस्सा हो जाएगा। आवश्यकता पड़ने पर इसकी बेड संख्या को बढ़ाकर 1000 भी किया जा सकता है। फिलवक्त इसे 500 बेड का बनाने का प्रस्ताव है। पहले यहां पर सीएसआर फंड से मेडिकल कॉलेज का 1000 बेड का अस्थायी अस्पताल बनने का प्रस्ताव था पर, जरूरी सीएसआर फंड की उपलब्धता न होने के कारण यह संभव नहीं हो सका। अब इसे डीआरडीओ के माध्यम से बनाए जाने की तैयारी है। इसके लिए एमओयू (मेमोरेंडम आफ अंडरस्टेडिग) का मसौदा तैयार हो चुका है, साइन होना बाकी है। डीडीआरडीओ के हवाले से मेलाधिकारी चिकित्सा डॉ. एएस सेंगर का दावा है कि वह महज 15 दिनों में ही इसे तैयार कर देगा।

मेलाधिकारी चिकित्सा डॉ. एएस सेंगर ने बताया कि कोरोना संक्रमण के खतरे के बीच आयोजित होने वाले हरिद्वार कुंभ में करोड़ों की संख्या में आने वाले श्रद्धालओं की स्वास्थ्य सुरक्षा के माकूल इंतजाम करने को उत्तराखंड उच्च न्यायालय ने राज्य सरकार को निर्देशित किया हुआ है। इसके तहत हरिद्वार में कोविड केयर सेंटर को जिले के 3000 से अधिक होटल के 10,000 बेड को चिह्नित कर इसके लिए आरक्षित कर लिया गया है। जरूरी पड़ने पर 24 से 48 घंटे के नोटिस पर इन्हें कोविड केयर सेंटर में तब्दील कर दिया जाएगा। इसके अलावा जिला प्रशासन ने दूधाधारी चौक पर ऑक्सीजन की सुविधा से लैस 470 बेड का अस्थायी कोविड अस्पताल का निर्माण किया है, जबकि हरिद्वार के तीन और रुड़की के एक सरकारी अस्पताल में भी इसकी तैयारी है। इन व्यवस्थाओं के बावजूद कुंभ के दौरान स्थिति बिगड़ने पर वेंटीलेटर की सुविधा को बढ़ाने को डीआरडीओ के सहयोग से वेंटीलेटर सहित सभी आधुनिक चिकित्सीय सुविधाओं से युक्त 500 बेड के आइसीयू बनाया जा रहा है। हरिद्वार कुंभ मेला अधिष्ठान ने इसकी स्वीकृति दे दी है, सरकार और जिला प्रशासन भी सिद्धांत: इसी पर राजी है। अगले छह-सात दिनों में राज्य स्वास्थ्य विभाग, मेला अधिष्ठान, जिला प्रशासन और डीआरडीओ की संयुक्त निरीक्षण के बाद इसे अमलीजामा पहना दिया जाएगा। जिलाधिकारी सी. रविशंकर ने बताया कि केंद्र सरकार की एसओपी में डीआरडीओ के मार्फत 2000 बेड के इस अस्पताल और 500 बेड का आइसीयू बनाए जाने के निर्देश दिए गए हैं। कहा कि इसके लिए सभी जरुरी तैयारियां की जा रही हैं, अस्पताल और आइसीयू बनने से कुंभ के दौरान काफी राहत हो जाएगी।

हरिद्वार में फिलवक्त कुल 50 वेंटीलेटर

हरिद्वार: हरिद्वार जिले के सरकारी और गैर सरकार अस्पतालों में फिलवक्त कुल मिलाकर 50 वेंटीलेटर ही हैं। जिला प्रशासन ने गैर सरकारी सभी अस्पताल के प्रबंधन से कुंभ के दौरान आवश्यकता पड़ने पर जनहित में इनके उपयोग करने की सहमति ले ली है। पर, कुंभ की भीड़ को देखते हुए यह संख्या कम बताई गई है। इस मामले में उच्च न्यायालय के निर्देश को ध्यान में रख कर व्यवस्थाएं जुटाई जा रही हैं।

https://www.jagran.com/uttarakhand/haridwar-drdo-will-build-500-bed-icu-21349190.html

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Mon, 08 Feb 2021 2:19PM

Decrease in Budget Spending for Defence

Defence allocation as well as defence expenditure for last four years is as under:-

(Rs in Crore)

Year	Defence Allocation/Expenditure		GDP	Percentage of GDP	
	BE	Actuals		BE	Actuals
2017-18	3,59,854.12	3,59,854	1,71,00,000	2.10	2.10
2018-19	4,04,364.71	4,03,457	1,89,70,000	2.13	2.13
2019-20	4,31,010.79	4,52,996	2,03,40,000(PE)	2.12	2.23
2020-21	4,71,378	3,38,630.9*	1,94,81,975(RE)	2.42	-

*(up to December 2020)

Note: GDP figures from FY 2017-18 to 2019-20 are as per Economic Survey 2020-21(Vol-2)-(Table 0.1 : Key Indicators). Figures for 2020-21 (RE) are as per Budget at a Glance (2021-22)

BE = Budget Estimates, RE = Revised Estimates, PE= Provisional Estimates

It may be seen from above data that Defence Budget as well as Defence Expenditure is increasing, implying higher spending.

There is no lack of proper protective clothing for defence personnel. The items are being procured on regular basis as per requirement of troops and accruing entitlement year on year is being met.

This information was tabled in a written reply by Raksha Rajya Mantri Shri Shripad Naik to a question asked by Shri Syed Nasir Hussain in Rajya Sabha today.

https://pib.gov.in/PressReleasePage.aspx?PRID=1696143

Press Information Bureau
Government of India

Ministry of Defence

Mon, 08 Feb 2021 2:18PM

Disinvestment of Defence Sector DPSUs

Defence Public Sector Undertakings (DPSUs) set for disinvestment are BEML Ltd, Garden Reach Shipbuilders & Engineers Limited (GRSE) and Mishra Dhatu Nigam Limited (MIDHANI). The products being produced by them are as under:

Sl. No.	Name of DPSUs	Product produced
1.	**BEML Ltd:**	Tatra based high Mobility/trucks, Recovery vehicles, Bridge Systems, Vehicle for Missile projects, Tank Transportation trailers, Military Rail wagons, Mine ploughs, Crash fire tenders, Snow Cutters, Aircraft Towing Tractors, Aircraft weapon Loading Trolley, Bull Dozers, Excavators, Loaders, Pile layers, wheel Dozers, tyre handlers, rope shovels, Dumpers, water sprinklers, motor graders, Under Mining equipment, integral rail coaches, metro cars, AC EMUs, OHE Cars, Steel and aluminium wagons, track laying equipment, utility vehicles, treasury vans, spoil disposal units, broad gauge rail.
2.	**Garden Reach Shipbuilders & Engineers Limited (GRSE):**	Frigates, Anti-Submarine Warfare Corvette, Missile Corvette, Landing Ship Tank, Landing Craft Utility, Survey Vessel, Fleet Replenishment Tanker, Fast Patrol Vessel, Offshore Patrol Vessel, Inshore Patrol Vessel, WJ-FAC, Hover Craft, Fast Interceptor Boat, Portable Bridges, Deck Machinery Items, Pumps, assembly and testing facilities for marine engine.
3.	**Mishra Dhatu Nigam Limited (MIDHANI):**	Super alloys, Titanium and Titanium Alloys, special steel, other metal and alloys, bars, bright bars, wire, fine wire, sheets, Open-die forgings, Investment castings, fastener, armour products.

Policy of disinvestment of minority stake without transfer of management control is being followed for priority sector including defence CPSUs to unlock value, promote public ownership, to meet the minimum public shareholding norms of SEBI and for ensuring higher degree of accountability. For non-priority sector where competitive markets have come of age, the policy of strategic disinvestment is followed.

This information was tabled in a written reply by Raksha Rajya Mantri Shri Shripad Naik to a question asked by Shri K K Ragesh in Rajya Sabha today.

https://pib.gov.in/PressReleasePage.aspx?PRID=1696142

Press Information Bureau
Government of India

Ministry of Defence

Mon, 08 Feb 2021 2:17PM

Malabar Naval Exercises

The Malabar series of exercises began as an annual bilateral naval exercise between India and the US in 1992. Japan joined the Naval Exercises in 2015. Malabar 2020 saw the participation of the Australian Navy also.

The Malabar Naval exercises enhanced synergy, interoperability and coordination between the four country navies. The exercises highlight the convergence of views among the participating countries on maritime issues and their shared commitment to an open, inclusive Indo-Pacific and a rules-based international order.

The 24th edition of Malabar maritime exercise, hosted by Indian Navy in 2020, witnessed the participation by Indian Navy, United States Navy, Japan Maritime Self Defence Force and Royal Australian Navy.

This information was tabled in a written reply by Raksha Rajya Mantri Shri Shripad Naik to a question asked by Shri K Somaprasad in Rajya Sabha today.

https://pib.gov.in/PressReleasePage.aspx?PRID=1696140

NEWS18

Tue, 09 Feb 2021

Forces procuring arms and equipment on emergency basis to thwart China threat on ladakh border: Govt

Minister of State for Defence Shripad Naik said the armed forces are procuring terrain and weather specific equipment to thwart the likely threat from India's "Northern adversary", in a clear reference to China

Emergency procurement of certain arms and equipment have been undertaken by the armed forces to beef up combat potential in view of the eastern Ladakh border standoff, the government said in Rajya Sabha on Monday. Minister of State for Defence Shripad Naik said the armed forces are procuring terrain and weather specific equipment to thwart the likely threat from India's "Northern adversary", in a clear reference to China.

To a specific query, the minister also said no special allowance is given to families of the armed forces personnel who are posted along the border with China. "On the basis of the threat perception and technology available, the armed forces are procuring terrain and weather specific equipment to thwart the likely threat from our Northern adversary," he said in a written reply.

India has been engaged in a confrontation with China on its northern borders since last year. (REUTERS/Danish Ismail)

"In the current standoff, emergency procurement for certain arms and equipment have been undertaken by the armed forces to beef up their combat potential," Naik said. Close to 100,000 Indian and Chinese troops are currently deployed in eastern Ladakh as both sides

have been holding on to their ground and showing readiness for a long-haul, amid continuing diplomatic and military talks to find an amicable solution.

The face-off began in early May last year following a clash between soldiers of the two sides near Pangong lake. In the ninth round of military talks last month, both sides agreed to push for an early disengagement of troops and resolved to continue "effective efforts" to stabilise and control the situation in eastern Ladakh. In response to another question, Naik said there has been no instance of any complaint received at the Army headquarters over the quality of food served to jawans in the last three years. "The complaints are addressed by command headquarters and below, wherever they are received," he said.

https://www.news18.com/news/india/forces-procuring-arms-and-equipment-on-emergency-basis-to-thwart-china-threat-on-ladakh-border-govt-3406289.html

The Tribune

Tue, 09 Feb 2021

HAL inks pact with Israeli firm for supply of Head Up Display Systems for transport aircraft

The DOHS will be initially manufactured in HAL's Division at Korwa

By Vijay Mohan

Chandigarh: Public sector aircraft manufacturer Hindustan Aeronautics Limited (HAL) has entered into an agreement with Elbit Systems Electro Optics Elop Limited of Israel for the supply of Digital Overhead Head Up Display Systems (DOHS) for transport aircraft.

The DOHS will be initially manufactured in the existing facility of HAL's Division at Korwa. A dedicated facility will be augmented progressively in proportion of manufacturing volume, according to a statement issued by HAL on Monday.

More than 500 head up display units have been supplied for various Indian platforms such as the Su-30MKI, Jaguar and MiG-27M upgrade. PTI file photo

HAL and Elbit Systems have envisaged a mutual co-operation to upgrade its technological base and acquire high end technology on DOHS, which is primarily used in transport aircraft worldwide. Comprising modern optics it provides sharp brightness, larger field of view and larger head motion box.

Earlier, HAL's Korwa Division had entered into licensed Transfer of Technology agreement with ELOP Electro-Optics Industries Limited, Israel, for setting up the D-level maintenance and manufacturing facilities of cathode ray tube-based head up display systems in the year 2000 and 2003, respectively.

More than 500 head up display units have been supplied for various Indian platforms such as the Su-30MKI, Jaguar and MiG-27M upgrade.

https://www.tribuneindia.com/news/nation/hal-inks-pact-with-israeli-firm-for-supply-of-head-up-display-systems-for-transport-aircraft-209615#:~:text=Public%20sector%20aircraft%20manufacturer%20Hindustan,(DOHS)%20for%20transport%20aircraft.

Tue, 09 Feb 2021

Tata Group to build military aircraft in India: All you need to know

In a first for the private sector industry, Tata Group gained the Intellectual Property (IP) rights for a German-origin platform to develop an indigenous military aircraft in India

By Arfa Javaid

In a first for the private sector industry, Tata Group gained the Intellectual Property (IP) rights for a German-origin platform to develop an indigenous military aircraft in India. It is in line with Prime Minister Modi's vision of AtmaNirbhar Bharat-- supporting local defence capabilities and reducing dependence on costly imports.

The plan is to integrate indigenous sensors and payloads to convert it into an intelligence-gathering asset. If the venture is successful, Tata Group will become the first private sector entity to build military-grade aircraft-- an area of high-tech expertise that has traditionally been the exclusive domain of the state-owned Hindustan Aeronautics Limited (HAL).

Representational Image: Tata Group to Build Military Aircraft in India

Highlights:

1. As per the media reports, the aircraft will be based on the Grob G 180 SPn-- a German-made jet that never reached its final production due to financial distress.
2. The aircraft is reportedly designed for flying at an altitude of 41,000 feet, having a maximum altitude of 45,000 feet.
3. Once inducted, the aircraft will be used for cross-border surveillance and signal intelligence, among other military purposes.
4. The aircraft is designed to land on grass and gravel.
5. The aircraft is expected to have a range of 1800 nautical miles, 6-7 hours endurance with payload capacity in excess of 1,000 kg.
6. The high-altitude, twin-engine aircraft that is capable of playing multiple roles is currently in the final stages of testing in Germany.
7. The aircraft is likely to arrive in India in the next three months for further integration.
8. It was presented in Aero India 2021.

MD of TASL, Sukaran Singh stated, "We are now focussing on modifying the aircraft to fit special payloads so that it can undertake a demonstration of surveillance capabilities. For a country like India, with multiple mountain ranges spread across the country, including on international borders, this capacity is extremely vital. India has been dependent on foreign suppliers to meet this need."

He further added, "With TASL bringing this aircraft technology to the table, India will have a cutting edge air-borne surveillance platform, with control over the software, customization as well as maintenance, based within the country."

https://www.jagranjosh.com/general-knowledge/tata-group-to-build-military-aircraft-in-india-1612792081-1

The Indian EXPRESS

Tue, 09 Feb 2021

Time for a defence unicorn

Government should facilitate starts-ups in defence by providing marketing support and incentives such as tax exemptions, subsidised land for manufacturing facilities and simplified procurement processes

By Dhanendra Kumar

It is a watershed moment for start-ups in the defence production space in India. At the recently concluded Aero-India show, the government signed a Rs 48,000 crore contract to procure 83 Tejas aircrafts from HAL, the largest "Make in India" deal ever. More importantly, the Air Force Chief R K S Bhadauria clearly underlined the importance of building indigenous defence capability with participation from our private sector. These developments are a "call-to-action" for India's tech-savvy startups to now make their presence felt in the national security realm.

Defence Minister Rajnath Singh at the inauguration of Aero-India 2021. (File)

Today, India has the third largest startup ecosystem in the world, with close to 50,000 startups. According to data provided by the Ministry of Commerce and Industry, 1,300 new tech startups were born in 2019 alone, which means that two to three tech startups are born every day in our country. However, not enough of our mavericks are daring to enter the defence space. One only needs to look at the sectoral spread of our unicorns to find the evidence for this. Out of the 21 Indian unicorns identified by the Hurun Global Unicorn List 2020, seven were in e-commerce, three in fintech, two each in the shared economy, on-demand delivery and logistics and one each in the new energy, edu-tech, big data, communications and gaming segments. Unfortunately for us, defence was not among the first 10 sectors of our economy to produce at least one unicorn.

The above identified problem has taken on a serious dimension since the escalation of tensions with China last year. India needs to ramp up indigenous defence production not only for the sake of increasing export-driven manufacturing, but also for self-reliance in the face of a formidable adversary. Regrettably, in 2018-19, defence procurement from Indian vendors was at a five-year low. Almost exactly a year ago, details tabled in the Lok Sabha by Shripad Naik, Minister of State for Defence, showed that over the last five years, while the procurement from Indian vendors had increased, in 2018-19, it fell by 10.8 per cent on a year-on-year basis. Currently, the private sector in India has less than 5 per cent annual share of direct orders from the defence ministry for manufacturing. While these are statistics that may be cause for concern for citizens and fiscal deficit hawks, they illustrate a massive opportunity for startups.

India is currently the world's second-largest arms importer, accounting for 9.2 per cent of the global arms imports between 2015-19. With a government poised to reduce import-dependence at the helm, start-ups have a large pie to go after. India is the third-largest military spender in the world with its military spending at $71.1 billion in 2019. India's start-ups with best-in-class capabilities in automation, robotics, navigation systems, drones and big data should now target the defence production sector with a laser focus. From a "winner-takes-all" approach that is prevalent in the digital economy, startups now need to move to an "all-are-winners" approach to succeed in the national security space. When the technological prowess of our start-ups adds to our military might, it will be a win-win for citizens and soldiers as well as entrepreneurs and government officials committed to building self-reliance.

Of course, start-ups will have to be provided with big-bang benefits in order to encourage them to contribute to our defence capabilities. The government has already rolled out some initiatives to this end. In 2018, the government launched "Innovations for Defence Excellence" (iDEX), an initiative to provide incubation and funding support to MSMEs and start-ups. The government's

Defence India Startup Challenges (DISC) also provides a platform for start-ups to supply innovative solutions to the armed forces. However, these need to be augmented by marketing support and incentives such as tax exemptions, subsidised land for manufacturing facilities and simplified procurement processes. The government should also facilitate start-ups to reach military establishments of friendly countries with their technology solutions through its diplomatic channels.

The Indian economy has many examples of start-ups and the government working in tandem towards common policy outcomes. In financial services, start-ups are ushering in a cashless economy and reducing large-scale inefficiencies. In the retail sector, e-commerce companies are facilitating doorstep access to essential items at a time when the pandemic has made social distancing a reality. In the education sector, start-ups are helping improve learning outcomes, within and outside government schools. The next frontier for start-ups to address large problems through innovative solutions in tandem with the government is defence and national security. Some unique solutions have already started popping up on the radar, but defence-tech is in a way still waiting for a generation of first-movers.

With government and military leaders giving out an open call to private players, the ball is now in the court of our young entrepreneurs. It is time for our young high-spirited technology regiment to come out of hibernation and give birth to India's first defence sector unicorn.

(The writer is former secretary (defence production), Ministry of Defence, and is currently Chairman, Competition Advisory Services, a strategic advisory firm.)

https://indianexpress.com/article/opinion/time-for-a-defence-unicorn-7179928/

TIMESNOWNEWS.COM

Tue, 09 Feb 2021

As more Rafale fighters join IAF's fighter fleet, China begins readying its fighter jet J-20

According to reports that the J-20 twin-seater, a trainer, has the WS-10 engine and could have the more powerful WS-15 in the future

By Srinjoy Chowdhury

New Delhi: As more Rafale fighters join the Indian Air Force's fighter fleet, China has begun readying its best fighter, the J-20.

The J-20 participated in a high-profile People's Liberation Army Air Force (PLAAF) exercise in Dingxin, in the Gobi desert, just south of Mongolia, in northern China, late last year. About six J-20s may have taken part in the exercise that involved live-firing. The H-6 bomber, deployed near Ladakh, was also involved in the ten-day exercise.

The Rafale fighter jet flies past the Hindon Air Force Station where full dress rehearsals for Air Force Day Parade 2020 are underway (File Photo) | Photo Credit: IANS

China has been trying to replace the Russian engine of the J-20 with a more advanced locally-made version. There are reports that the J-20 twin-seater, a trainer, has the WS-10 engine and could have the more powerful WS-15 in the future.

So far, the Chinese have built about 50 J-20s and they're, as expected split between their combat units and their training establishments, equivalent to the Indian Air Force's TACDE. All the new J-20s are powered by the WS-10 engine.

The Chinese say it is a Stealth fighter, which means it cannot be picked up by radars, but sources said that while the frontal part of the J-20 is stealthy, the same cannot be said about the rear of the plane. Which is why the Chinese are trying to develop serrated engine nozzles to reduce the

'signature' of the plane's tail. Nor is it very easy to maintain, requiring air-conditioned hangers for parking and servicing.

But the Chinese have plans for the J-20. There are plans to modify the plane for carrier operations. Currently, the PLAAF has two carriers-- the Liaoning, acquired from Russia, and the Shandong. The Shandong has been active, having sailed to the Yulin submarine base late last year.

https://www.timesnownews.com/india/article/as-more-rafale-fighters-join-iaf-s-fighter-fleet-china-begins-readying-its-fighter-jet-j/717483

THE DIPLOMAT
READ THE DIPLOMAT, KNOW THE ASIA-PACIFIC

Tue, 09 Feb 2021

India-US Army exercises begins in Indian border state of Rajasthan

The 16th edition of Yudh Abhyas is the third time in the last four months that Indian and U.S. militaries have exercised together

By Abhijnan Rej

The latest edition of the annual exercises between the Indian and U.S. armies kicked off on February 8 at the Mahajan Field Firing Ranges in Rajasthan, a western Indian state bordering Pakistan. The 16th edition of the Yudh Abhyas exercises, which will continue until February 21, will – like past iterations – focus on counterterrorism and promote interoperability between the two forces, according to the Indian Army.

India and the United States began army exercises in 2004. A U.S. army description of the goals of the Yudh Abhyas series notes: "Execution of these exercises is vital to effective and efficient peacekeeping and foreign disaster relief operations and civil affairs core tasks focused on humanitarian and disaster relief."

Indian Army RFN Anil Pawe, an infantryman with the 99th Mountain Brigade, and Spc. Henry Vaillancourt, a paratrooper with the 82nd Airborne Division's 1st Brigade Combat Team, partner up to fire an M249 Squad Automatic Weapon May 4, 2013, at Fort Bragg, N.C. as part of the 2012 Yudh Abhyas exercises. Credit: Flickr/Fort Bragg

According to a statement by defense spokesperson Lt. Col. Amitabh Sharma, as quoted by the Press Trust of India, "Exercise with U.S. Army is significant in terms of security challenges faced by both the nations in the backdrop of global terrorism. The joint military exercise will enhance the level of defence cooperation between both armies which will also foster the bilateral relations between both nations and reiterate India's key role as a key partner in the Indo-Pacific region."

The latest iteration of the Yudh Abhyas exercises is the third time Indian and U.S. militaries have exercised together in the last four months, highlighting the growing depth of the bilateral defense relationship. In November last year, the United States' and Indian naval ships – along with those of Australia's and Japan's – participated in the annual Malabar exercise in the Indian Ocean, following which the anti-submarine warfare Sea Dragon exercise in Guam also saw the participation of the two (along with, again, Australia and Japan, but also Canada) last month. Along with single-service exercises as well as a one involving special forces from both countries, the two also held a first ever tri-service exercise, Tiger Triumph, in November 2019.

According to Sharma, the 2021 Yudh Abhyas (Hindi for "war practice") will see the Indian army fielding troops from the 11th Battalion of Jammu and Kashmir Rifles. The United States army will be represented by 2nd Battalion of the 3rd Infantry Regiment of 1-2 Stryker Brigade Combat Team, according to Sharma.

A U.S. Embassy, New Delhi, statement, providing additional details, has noted that the exercises will involve around 250 soldiers from each side. Pointing to the format of the exercises, it said that along with "expert academic exchanges and professional development workshops that focus on training at the corps-level and below," they will feature a command post exercise (CPX) and a field training exercise (FTX) to be held concurrently. The statement notes that the CPX will focus on United Nations-mandated peacekeeping missions, while the FTX will further "fundamental war-fighting skills to enhance combined operational capacity."

India and the United States had agreed to jointly train U.N. peacekeepers from six African states in 2015.

While it is true that regular military-to-military engagements between India and the United States have significantly enhanced interoperability between forces, the two sides have still some way to go before they can function as a combined force in a regional contingency. Part of the problem — beyond a still-considerable gap in training, doctrines, and platforms and weapon systems operated by both sides — lies with the fact that when it comes to the United States, many in the Indian armed forces continue to be skeptical about the country's strategic intent and attitude towards India. In a controversial Stimson Center study published last year, a former senior Defense Intelligence Agency officer Col. David Smith had noted that "a high level of mistrust (and thinly veiled hostility) about the United States generally persists in all three groups [senior, senior mid-level, and junior mid-level] of Indian officers."

https://thediplomat.com/2021/02/india-us-army-exercises-begins-in-indian-border-state-of-rajasthan/

ISRAELDEFENSE

Tue, 09 Feb 2021

Rafael to provide anti-torpedo defense system to Indian Navy

The system will be supplied under the Israeli company's joint project with India's BDL, and as part of Rafael's commitment to the self-reliance initiative of the Indian government

By Eyal Boguslavsky

New Delhi: As more Rafale fighters join the Indian Air Force's fighter fleet, China has begun readying its best fighter, the J-20.

Photo: Spokesperson of the Indian Navy

Indian website The Economic Times reported that Israel's Rafael Advanced Defense Systems and Bharat Dynamics Limited (BDL) are teaming up to provide an anti-torpedo defense system, called SHADE, to the Indian Navy. A memorandum of understanding (MoU) regarding the project was signed by Rafael's Corporate Regional Director for India, Eli Hefets, and BDL Director (Technical) N. P. Diwakar, in the presence of Defense Minister Rajnath Singh, last weekend during the Aero India 2021 Show in Bengaluru.

In a statement, Rafael said that the joint induction of SHADE is part of Rafael's commitment to the "Aatma-nirbhar Bharat" (self-reliance) initiative of the Indian government. SHADE will be the first system in the world to employ a combination of soft kill and hard kill decoys, thereby providing a robust and effective defense against modern torpedoes, the statement said.

The MoU will be a precursor for cooperation on futuristic systems for the Indian Armed Forces, entailing advanced transfer of technology, with a "very high" level of indigenous content, leading to self-sufficiency in the field of cutting-edge technology in defense, according to the statement.

The pact represents an ideal opportunity for industrial cooperation between Israel and India that will lead to closer collaboration and co-development of advanced systems in India, it said.

"Parties will work together to identify joint opportunities for export, subject to export control guidelines of the two governments", the statement added.

https://www.israeldefense.co.il/en/node/48224

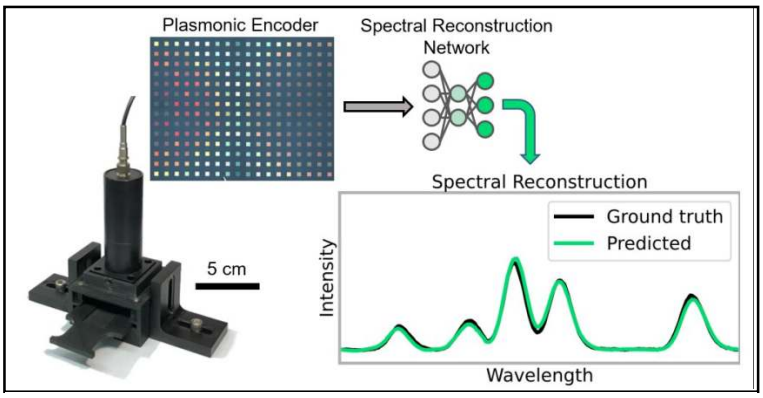
Science & Technology News

PHYS.ORG

Tue, 09 Feb 2021

Researchers create low-cost, AI-powered device to measure optical spectra

A team of researchers at the UCLA Samueli School of Engineering has demonstrated a new approach to an old problem: measuring spectra of light, also known as spectroscopy. By leveraging scalable, cost-effective nano-fabrication techniques, as well as AI-driven algorithms, they built and tested a system that is more compact than conventional spectrometers, while also offering additional design advantages.



Neural network-based on-chip spectroscopy using a scalable plasmonic encoder. Credit: UCLA Engineering Institute for Technology Advancement

Spectroscopy is a central tool for many applications in the life sciences, medicine, astrophysics and other fields. Conventional spectrometers split light into its constituent colors so that the intensity of each one can be measured. This leads to several constraints and design tradeoffs: finer spectral resolution (with tighter spacing between detectable colors or wavelengths) may require using more expensive hardware, increasing the physical footprint of the device and potentially sacrificing signal strength. This can be problematic for applications requiring high sensitivity, high spectral resolution, and compact system design. It also presents further challenges for hyperspectral imaging, which involves capturing a spectrum for each pixel in an image, a technique commonly used for remote sensing tasks such as environmental monitoring for assessing crop health or the prevalence of greenhouse gases among other uses.

The UCLA researchers' approach, powered by AI, re-envisions the spectroscopy problem from the ground up. Instead of relying on splitting the light into a rainbow of constituent wavelengths, a nanostructured chip spectrally deconstructs the light using hundreds of unique spectral filters in parallel. This chip uses plasmonic structures as a spectral encoder, which is composed of 252 tiles, each featuring a unique nanoscale pattern that transmits a distinct spectrum of light. In other words, the unknown spectrum of light to be measured is "encoded" in the transmission of each of these plasmonic tiles. This nanostructured encoder is fabricated through an imprint lithography process that could drastically reduce the cost of production and enable scaling to large production volumes.

The light transmitted by the spectral encoder chip is captured using a standard, inexpensive image sensor that is routinely used in our mobile phone cameras, producing an image that is then fed into a neural network tasked with reconstructing the unknown spectrum of light from the

encoded image information. This spectral reconstruction neural network was shown to produce accurate results much faster than other computational spectroscopy approaches, yielding a result in less than one thirtieth of a millisecond. This new AI-powered spectrometer framework demonstrates a path around the typical tradeoffs between device cost, size, resolution and signal strength.

"We are not only demonstrating a proof on concept device here," said Aydogan Ozcan, Chancellor's Professor of Electrical and Computer Engineering and Associate Director of the California NanoSystems Institute (CNSI), whose group conducted the research. "We are presenting an entirely new framework for chip-scale spectrometer design. The neural network, the training spectra, the nano-encoder geometries and materials; each of these components could be optimized for different applications or specific tasks, enabling compact, cost-effective spectrometers that produce high quality measurements for a given sample type or spectral regime."

This AI-enabled on-chip spectrometer framework could find various applications ranging from environmental monitoring of gases and toxins, to medical diagnostics where spectral information is needed to distinguish the presence of different biomarkers. The researchers also note that the plasmonic tiles could be scaled down and tessellated (like a camera pixel grid) to perform hyperspectral imaging, which can be important in, for example, autonomous remote sensing where compact, lightweight form factor is essential.

The other authors of the work were Electrical & Computer Engineering researchers Calvin Brown, Artem Goncharov, Zachary S. Ballard and Yunzhe Qiu, undergraduate students Mason Fordham and Ashley Clemens, and Adjunct Professor of Electrical and Computer Engineering Yair Rivenson.

The study was published in the journal *ACS Nano*.

More information: Calvin Brown et al. Neural Network-Based On-Chip Spectroscopy Using a Scalable Plasmonic Encoder, *ACS Nano* (2021). DOI: 10.1021/acsnano.1c00079

Journal information: *ACS Nano*

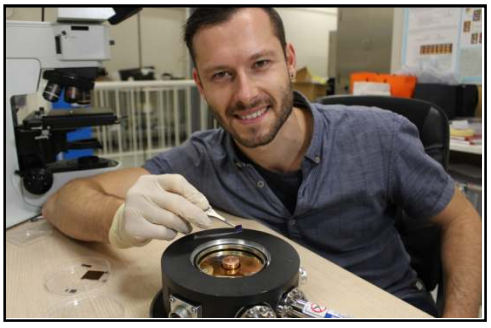
https://phys.org/news/2021-02-low-cost-ai-powered-device-optical-spectra.html

PHYS.ORG

Tue, 09 Feb 2021

Scientists create armour for fragile quantum technology

An international team of scientists has invented the equivalent of body armour for extremely fragile quantum systems, which will make them robust enough to be used as the basis for a new generation of low-energy electronics.



FLEET PhD student Matthias Wurdack. Credit: Phil Dooley ANU

The scientists applied the armour by gently squashing droplets of liquid metal gallium onto the materials, coating them with gallium oxide.

Protection is crucial for thin materials such as graphene, which are only a single atom thick—essentially two-dimensional (2-D) – and so are easily damaged by conventional layering technology, said Matthias Wurdack, who is the lead author of the group's publication in *Advanced Materials*.

"The protective coating basically works like a body armour for the atomically-thin material, it shields against high-energy particles, which would cause a large degree of harm to it, while fully maintaining its optoelectronic properties and its

functionality," said Mr Wurdack, a Ph.D. student in the Nonlinear Physics Centre (NLPC) of the Research School of Physics, and the FLEET ARC Centre of Excellence.

The new technique opens the way for an industry based on ultra-thin electronics to expand, said leader of the research team, Professor Elena Ostrovskaya, also from NLPC and FLEET.

"Two-dimensional materials have extraordinary properties such as extremely low resistance or highly efficient interactions with light."

"Because of these properties they could have big role in the fight against climate change."

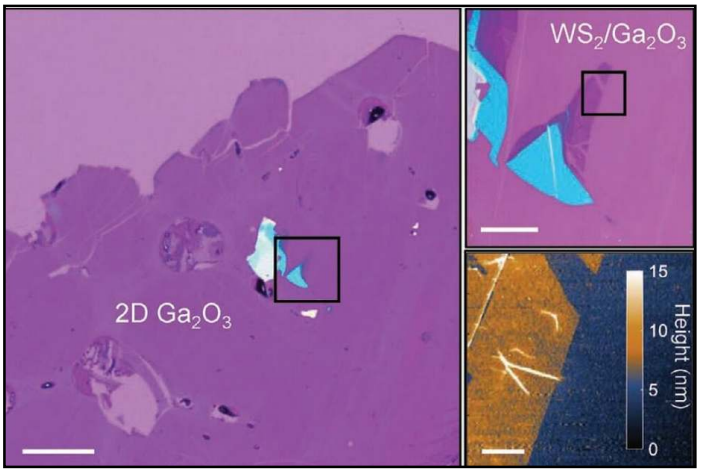
Eight percent of global electricity consumption in 2020, was due to information technologies, including computers, smartphones and large data centres of tech giants such as Google and Amazon. That figure is projected to double every decade as demand for AI services and smart devices skyrockets.

However, this work promises lower-energy alternatives for electronics and optoelectronics, by harnessing the superior performance of 2-D semiconducting materials, such as tungsten disulphide, which was used in this study.

Using 2-D materials to make more efficient devices will have advantages beyond reduced carbon emissions, says Mr Wurdack.

"2-D technology could also enable super-efficient sensors on space craft, or processors in Internet of Things devices that are less limited by battery life."

The team created their protective layer by exposing to air a droplet of liquid gallium, which immediately formed a perfectly even layer of gallium oxide on its surface a mere three nanometers thick.



Tungsten-disulfide / gallium-oxide heterostructure. Credit: FLEET

By squashing the droplet on top of the 2-D material with a glass slide, the gallium oxide layer can be transferred from the liquid gallium onto the material's entire surface, up to centimetres in scale.

Because this ultrathin gallium oxide is an insulating amorphous glass, it conserves the optoelectronic properties of the underlying 2-D semiconductor. The gallium oxide glass can also enhance these properties at cryogenic temperatures and protects well against other materials deposited on top. This allows the fabrication of sophisticated, layered nanoscale electronic and optical devices, such as light emitting diodes, lasers and transistors.

"We've generated a nice alternative to existing technology that can be scaled for industry applications," Mr Wurdack said.

"We hope to find industry partners to work with us to develop a protective layer printer based on this technology, that can go into any lab, like a lithography machine."

"It would be exciting to see fundamental research like this find its way into industry!"

"Ultrathin Ga_2O_3 Glass: A Large-Scale Passivation and Protection Material for Monolayer WS_2" was published in *Advanced Materials* in December 2020.

More information: Matthias Wurdack et al. Ultrathin Ga_2O_3 Glass: A Large-Scale Passivation and Protection Material for Monolayer WS_2, *Advanced Materials* (2020). DOI: 10.1002/adma.202005732

Journal information: *Advanced Materials*

https://phys.org/news/2021-02-scientists-armour-fragile-quantum-technology.html

PHYS.ORG

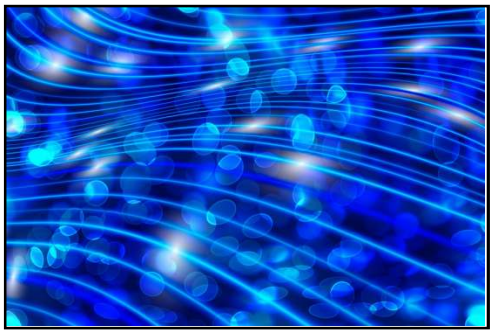
Tue, 09 Feb 2021

2-D centrosymmetrical antiferromagnets model produces pure spin current

By Li Yua

Pure spin current without any accompanying net charge current can ensure low dissipation in information processing and storage.

Pure spin current can be produced by optical illumination in systems with broken spatial inversion symmetry with special photon energy or polarization angle. But it is difficult in practical application.



Credit: CC0 Public Domain

Recently, a research group led by Prof. Zheng Xiaohong from the Institute of Solid State Physics (ISSP), Hefei Institutes of Physical Science (HFIPS), proposed a new and robust route to achieve pure spin current by photogalvanic effect with two-dimensional (2-D) centrosymmetrical antiferromagnets. The study was published in *npj Quantum Information* on Feb. 4.

"Due to the preservation of structural inversion symmetry and spin polarization antisymmetry in these materials, the charge photocurrent induced by the spin photogalvanic effect (PGE) is definitely zero," said lead author Jiang Peng, a doctoral student. "While finite photocurrents for both spin channels with opposite flow directions and equal magnitude are still generated, giving rise to a pure spin current."

The researchers constructed a dual-gated photoelectric device with a zigzag graphene nanoribbon (ZGNR), which had intrinsic antiferromagnetic (AFM) coupling between the two edges and spin degenerate band structure.

They found that the generated pure spin current was neither dependent on the photon energy, nor on the polarization feature of the applied polarized light. Moreover, it demonstrated that spin-splitting band structures were not necessary.

"The device may work in the sense that both fully spin polarized current and pure spin current can be generated, by tuning the dual gates applied to the two leads," said Prof. Zheng.

This PGE-induced mechanism can be extended to other 2-D centrosymmetric magnetic materials with spin polarization antisymmetry, providing a new way for the experimental generation of pure spin current in the photoelectric field.

More information: Peng Jiang et al. Two-dimensional centrosymmetrical antiferromagnets for spin photogalvanic devices, *npj Quantum Information* (2021). DOI: 10.1038/s41534-021-00365-7

https://phys.org/news/2021-02-d-centrosymmetrical-antiferromagnets-pure-current.html

brisbane times

Tue, 09 Feb 2021

Researchers identify gene that gives early warning of severe COVID-19

By Stuart Layt

Australian researchers say they have identified a way to tell straight away whether someone presenting to a hospital with COVID-19 will develop severe symptoms of the disease.

The finding has the potential to help doctors get ahead of the virus in patients who are at serious risk from the disease, giving them treatments to head off the worst of the symptoms.

The research team from QUT's Centre for Genomics and Personalised Health and School of Biomedical Sciences had been working on identifying biomarkers for lung cancer.

However, research leader Arutha Kulasinghe said they rapidly redeployed their methods to COVID-19's effect on the lungs as the pandemic took hold.

"We were able to really understand the cellular architecture of the virus, what it's binding to in the lungs, and then identify the genes that are present in COVID-infected tissue," Dr Kulasinghe said.

"We found a small handful of genes which were really high in COVID-19 patients, and one of them was an interferon response gene called IFI27."

An interferon response gene is activated by the body's immune system to fight off viruses, and it has already been theorised that they are involved in the most severe cases of COVID-19.

Dr Kulasinghe said their research shows IFI27 is a "triage biomarker" for disease severity.

"What that means is that when a patient comes to clinic, whatever symptoms they're exhibiting, if we measure their levels of IFI27 we can tell how severe their disease is going to be," he said.

"We've looked at a cohort from Brazil, we've looked at a cohort from Iran, and we've looked at a cohort from Chile and the data matches up."

"This would let a doctor look at a patient and say, 'you're going to need a ventilator' or 'you'll be okay, you can be managed at a lower intensity'."

Having the three separate patient cohorts all show the same high levels of IFI27 in the most severe COVID patients gave researchers the confidence to make their strong recommendations, he said. Dr Kulasinghe delivered the findings to a virtual meeting of the American Association of Cancer Research (AACR) last week.

"There has been early work showing IFI27 is elevated in the blood of patients with severe COVID, but this is the first time showing the signal is coming from the lung tissue," he said.

"We saw that IFI27 is elevated in a step-wise manner with severe cases having high levels."

The research team, which included University of Queensland Diamantina Institute and the Walter and Eliza Hall Institute of Medical Research, used spatial transcriptomic profiling to study lung samples from COVID-19 patients who had died.

They used sample groups from overseas, Dr Kulasinghe said, because Australia did not have enough COVID deaths to provide a large enough sample group, although they were cross-referencing the small amount of data that is available from Australia.

https://www.brisbanetimes.com.au/national/queensland/researchers-identify-gene-that-gives-early-warning-of-severe-covid-19-20210208-p570na.html