



Canadian Aeronautics and Space Institute Institut aéronautique et spatial du Canada

Patron
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***** FOR IMMEDIATE RELEASE *****

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CANADIAN AERONAUTICS AND SPACE INSTITUTE ANNOUNCES 2018 SENIOR AWARD HONOUREES

Dr. Ian Fejtek, President of the Canadian Aeronautics and Space Institute for 2017-18, has announced on behalf of the Institute the recipients of the 2018 CASI Senior Awards. The Awards and the recipients are:

1. The Trans-Canada (McKee) Trophy

Mr. Kevin W. Horton

2. CASI McCurdy Award

Dr. Michael G. Daly

3. CASI C.D. Howe Award

Mr. Gilles Labbe'

4. CASI Alouette Award

CanX-4 and CanX-5 Precision Formation Flying Mission

The team is as follows:

Dr. Jean-Claude Piedboeuf	Canadian Space Agency
Dr. Brad Wallace	Defence R&D Canada (Ottawa)
Dr. Cameron Ower	MacDonald Dettwiler and Associates
Mr. Richard Worsfold	Ontario Centres of Excellence Inc.
Mr. Doug Sinclair	Sinclair Interplanetary
Dr. Robert E. Zee	UTIAS Space Flight Laboratory

The criteria for each of the Senior Awards and summaries of the credentials of the recipients are found on the following pages.

Presentation of the Alouette Award will be made on the evening of 16 May at a Gala Dinner during the CASI ASTRO 2018 Conference and 65th Annual General Meeting at the Delta Québec Hotel in Québec City.

Presentation of the Trans-Canada (McKee) Trophy, the McCurdy and the C.D. Howe Awards will be made in a separate Gala event at a time and place to be confirmed.

For more information and to purchase tickets, contact the headquarters of the Canadian Aeronautics and Space Institute at (613) 591-8787.

... details on the following pages ...



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The Trans-Canada (McKee) Trophy

The Trans-Canada Trophy, generally known as the McKee Trophy, is the oldest aviation award in Canada. It was established in 1927 by Captain J. Dalzell McKee. In 1926 McKee, of Pittsburgh, Penn. accompanied by Squadron Leader Earl Godfrey of the RCAF, flew from Montreal to Vancouver in a Douglas MO-2B seaplane. McKee was so impressed by the services provided by the RCAF and the Ontario Provincial Air Service that he established an endowment by means of which the greatly coveted McKee Trophy is awarded to the Canadian whose achievements were most outstanding in promoting aviation in Canada.

The Trophy was deeded to the Crown in the person of the Minister of National Defence - in the days when the Department of National Defence controlled all flying, military and civil. It was retired in 1964 and reinstated in 1966, and in 1971 administration of the Trophy was transferred to the Canadian Aeronautics and Space Institute. From 1964 until its move to Canada's Aviation Hall of Fame in 1983, the Trophy was on display at the National Museum of Science and Technology in Ottawa.

The Trophy is awarded for outstanding achievement in the field of air operations. The achievement for which the Trophy is awarded may be a single brilliant exploit within the past year, or a sustained high-level performance in recent years; pioneering of new areas of air operations and advancement of the use of aviation shall receive consideration over achievements serving no useful end. Qualifications as aircrew shall be a prior claim to consideration. The recipient shall have been a Canadian citizen at the time of the achievement.

Mr. Kevin Horton

Kevin Horton's early aerospace career included being the Section Head, Aircraft Flight Test - responsible for all fixed-wing flight test - for the Department of National Defence Aerospace Engineering Test Establishment (AETE). Despite Kevin's limited operational background, his strong technical knowledge and boundless enthusiasm for all aspects of aviation made him an obvious selection for Test Pilot training at EPNER in France. His subsequent laudable performance as an AETE Test Pilot clearly substantiated his selection for test pilot training.

Much of his career has been spent as a Transport Canada Certification Test pilot, being involved in many Bombardier aircraft certification programs over a seven year period. Kevin's relationship with the Bombardier Flight Test team involved a lot of "tough love" as he consistently imposed demanding certification standards on Bombardier products. Kevin's meticulous knowledge of design requirements and the professionalism he exhibited contributed importantly to certifying outstanding products.



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Kevin's contribution to aviation at Transport Canada went well beyond his work as a Certification Test Pilot. His intricate understanding of digital design systems, astute perspective on pilot workload and detailed understanding of all aspects of aircraft flying qualities, enabled him to make salient and highly valued contributions to the Bombardier CSeries fly-by-wire design and certification criteria. This was particularly important since Bombardier had developed a unique fly-by-wire design that blended and optimized the best features of the Boeing and Airbus fly-by-wire design configurations.

Another area of equal importance to Business Aviation was Kevin's contributions to the development of certification criteria for Bombardier's Global Express Enhanced Flight Vision Systems and Synthetic Vision Systems. Since Bombardier was leading the aviation industry with the development of these systems, Kevin's outstanding technical knowledge and detailed understanding of emerging regulations played a significant role in the ultimate introduction of these state-of-the-art products to Canadian aviation.

The valued certification and technical support Kevin Horton has given to Bombardier Aerospace to ensure the safe introduction of aviation products to Canada has also been extended to many other aerospace manufacturers including Airbus, Embraer and Gulfstream. In addition to his outstanding performance as a military and Transport Canada Certification Test Pilot, Kevin has consistently displayed a broad interest in all aspects of aviation. His respected technical papers published in "Kitplanes" and other prominent aviation publications, and his avid involvement as a respected aviation blogger and historian testify to his many contributions to the aviation community.

The CASI McCurdy Award

The McCurdy Award was introduced in 1954 by the Institute of Aircraft Technicians, one of the aeronautical groups that amalgamated to form the Canadian Aeronautics and Space Institute. The award commemorates the many engineering and other contributions made by John A.D. McCurdy during the first stages of the development of an aviation industry in North America.

The award is presented for outstanding achievement in the science and creative aspects of engineering relating to aeronautics and space research. The achievement must constitute the most significant contribution made in recent years toward the advancement of science and technology in aeronautics and space exploration, and must be worthy of special recognition. The contribution may be administrative in nature, but it must be directly related to science and technology, and have been sustained over a number of years at an imaginative and creative level above that which would normally be considered a competent and successful performance. The recipient shall have been a Canadian citizen at the time the contribution was made.



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Prof. Michael Daly

Professor Michael Daly is an exemplary scholar, pioneer and leader who has made outstanding contributions to the field of aeronautics and space research, with key impacts on Canada's space robotics and planetary science programs. Daly's achievements during the recent decades have enabled some of Canada's most ambitious initiatives in space to succeed and have uniquely changed the direction of Canada's space program. Built on his concept for a novel instrument (an asteroid mapping lidar), Dr. Daly is the lead scientist for Canada's newest space instrument: the OSIRIS-Rex Laser Altimeter (OLA) that launched to asteroid Bennu in September 2016. He also successfully engineered Canada's first instrument to operate from the surface of a solar system body other than the Earth. His work has created new opportunities for Canadian Space industry and improved Canada's competitiveness internationally.

As an Associate Professor at York University, Dr. Daly's scientific research has led to high-impact publications (including in *Science*) in the areas of asteroid geomorphology, deep-UV Raman spectroscopy, analytical techniques for the analysis of crater and boulder distributions, radiation effects, and optical instrumentation. As a researcher and Undergraduate Program Director for Canada's only Space Engineering Program as well as York University's Space Science program, Dr. Daly has used his experience to train the next generation of planetary scientists, instrumentation and space engineers.

Dr. Daly was instrumental in the development of the video systems that support the DEXTRE robotic manipulator (the two-armed robot) that is critical to the maintenance of the International Space Station (ISS) and a large part of the Canadian contribution to the human spaceflight program. He was their lead systems engineer and optical designer and provided much of the analysis in support of DEXTRE's grasping tasks. This development was critical for the successful and timely delivery of this robot to the CSA. Without this instrument, CSA's DEXTRE would not have been possible and Canada would have failed to deliver on its international commitments.

Michael Daly has also successfully developed the architecture of the External Berthing Camera System (EBCS), in use on the ISS since 2007. This system was a late addition to the ISS architecture and is used to stow cargo pallets on the external trusses of the ISS. Building on the basic capabilities of the DEXTRE cameras, Daly developed a sensor architecture that would be highly cost-effective and compatible with the ISS video system, which is used by NASA and the CSA to berth all external payloads to the ISS using the Canadian robotic systems.

As a direct result of the repatriation of the DEXTRE cameras and the development of the EBCS, a space camera development business was created in Canada that continues to this day with sales to NASA, JAXA, and commercial customers such as Urthecast.



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As Canada's interest in planetary science grew in the late 1990's and early 2000's, Dr. Daly led the negotiation for Canadian instruments aboard the Mars Phoenix Lander, leading the engineering of these instruments from concept to their successful operation on Mars in 2008. The instruments, which included an atmospheric lidar (Light Detection and Ranging) as well as pressure and temperature, were Canada's first instruments on the surface of a planetary body other than the Earth and represent the most significant change in direction for space research in Canada in the past two decades. They were also Canada's first successful instruments to operate outside of the Earth's orbit and were critical for Canadian credibility with international mission partners as well as to build credibility within the country that Canada was committed to planetary science and exploration of the solar system.

These instruments provided data that resulted in a uniquely Canadian discovery - snowfall on Mars.

Transitioning to academia in 2009, Dr. Daly has expanded his contributions to research in planetary science while transferring his knowledge to future generations of Canadian Space scientists and engineers. His research focusses on instrumentation and instrumentation techniques for future missions to the planets, moons and asteroids. Built on his concept for a novel instrument (an asteroid mapping lidar), Dr. Daly is the Deputy Principal Investigator and Lead Instrument Scientist for Canada for the OSIRIS-REx Laser Altimeter (OLA). This instrument is on its way to the asteroid, and will support the navigation of this NASA mission, will map the surface and the shape of this asteroid with unprecedented accuracy, and will ultimately help to collect and characterize the location where the asteroid will be sampled.

The significance of this achievement cannot be overestimated. This mission is Canada's first mission to visit an asteroid and will be the first to return a pristine solar system sample for Canada - opening a whole new area of research that will benefit Canadian scientists for decades to follow.

The CASI C.D. Howe Award

In 1966 CASI introduced the C.D. Howe Award in honour of The Right Honourable C.D. Howe. The Award is presented for achievements in the fields of planning and policy making, and overall leadership in Canadian aeronautics and space activities.

The achievement for which the award is given shall be of permanent significance, and its benefits to aeronautics and space activities in Canada shall have been unquestionably established. To this end, the recipient shall have sustained an outstanding personal performance in these fields for at least ten years and it shall be reasonably certain that the merits of his achievements will be unassailable in the light of history. The recipient shall have been a Canadian citizen and resident during the time the contribution was made.



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Mr. Gilles Labbé

Over the years, through his outstanding personal performance, Gilles Labbé has demonstrated a special ability to develop a vision and provide leadership and readiness to plan and implement this vision and make it a reality. First, he was a major force behind Héroux Inc.'s success between 1985 and 1986; in penetrating the American market, he was securing opportunities for the company and their products for years to come. He was also ensuring permanent benefits to the region's economic development and the quality of life for the hundreds of hardworking employees. Second, he provided the business leadership that led to the successful creation of Héroux Devtek Inc. In doing so, the company became a global leader and an international reference in the design, development, manufacture, repair and overhaul of landing gear and related products. Mr. Labbé's outstanding personal performance and consistent contribution over a period of more than thirty years, has had a favorable impact on the landing gear manufacturing industry; making it safer, more effective, as well as more technically and technologically advanced than at any time in its history.

At the age of 29, Gilles Labbé acquired Héroux Inc. from Bombardier Inc. with a friend and partner. His determination and power of conviction allowed him to obtain the entire loan needed from financial institutions; which at that time represented a substantial amount, \$10 million. A born visionary and relentless worker, his single objective was to transform the company and to raise it to unmatched heights. His ascent was meteoric. Nine short months following the acquisition in 1985, the order backlog rose from \$15M to \$100M. Confident of this success, his vision led him to penetrate the US market to ensure a firm growth opportunity for the company and its products. In 1986, the company was publicly traded and listed on the Toronto Stock Exchange. From 1985 to 1989, the sales soared from \$12M to more than \$50M.

Despite the economic recession of the 90s, Héroux Inc. acquired Devtek Corporation in 2000 resulting in the creation of Héroux Devtek Inc., a Canadian company specializing in the design, development, manufacture and repair and overhaul of landing gear systems and components for the Aerospace market. The Corporation pursued its growth internationally; acquiring Eagle Tool & Machine, an American competitor with a military clout, in 2010; giving Héroux Devtek leverage in the United States. The company then acquired APPH in 2014. The UK based company's proprietary, niche products along with their solid engineering background, were a perfect fit for HDI's growth plans; providing instant presence in Europe with new customers and new programs.

In September of 2013, the company signed a long-term contract with The Boeing Company to supply complete landing gear systems for the Boeing 777 and 777X programs. The contract was the largest ever awarded of its kind to HDI Landing Gear operations. Consequently, the Corporation has become the third largest landing gear company worldwide, supplying both the



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commercial and military sectors of the Aerospace market with new landing gear systems and components, as well as aftermarket products and services. Sales have since risen to attain revenues of approximately \$407M in fiscal year 2016.

Entrepreneurship has always lived in Gilles Labbé. From his initial public offering, he emerged as a fierce and determined player in a complex and highly competitive sector. From restructuring to acquisition, he has marked the aerospace products sector with his unique and strategic vision. He tackled full-scale globalization and created a certain joy for the industry; now he is recognized as a world leader. He has proven that to be successful in business, you have to be ready to reinvent yourself.

Alouette Award

The Alouette is an award introduced to recognize an outstanding contribution to advancement in Canadian space technology, application, science or engineering. It may be awarded to an individual, to a group, an organization or group of organizations, as appropriate to the nature of the contribution. The terms are:

- a) The trophy shall be awarded annually for an outstanding achievement in the field of astronautics as defined by the CASI By-Laws.
- b) The achievement may be either a single outstanding contribution or, in the case of an individual nominee, a sustained high level of performance resulting in several advances in space.
- c) The contribution on which the award is based must be recognized as a Canadian-led space endeavour or as a significant Canadian contribution to an international program.
- d) Preference shall be given to contributions that lead to new benefits for mankind.

The recipient shall have been a Canadian citizen at the time the contribution was made.

CanX-4 and Can-X5 Team

CanX-4 and CanX-5 are a pair of identical 7-kilogram nanosatellites that were launched into low Earth orbit on 30 June 2014 and completed their highly successful mission only four months after launch in early November 2014. Their mission was the demonstration of precise, autonomous on-orbit formation flying. Formation flying is defined as two or more satellites controlling autonomously their position and orientation with respect to one another to achieve a predefined configuration necessary for coordinated operations. Applications for formation flying in space include sparse aperture sensing where smaller apertures on multiple satellites can be combined to achieve an effective aperture of a large instrument on a large satellite. Other applications include ground moving target indication, precise geolocation, and on-orbit



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servicing. The achievable performance in each of these applications is directly related to the knowledge and control of baseline separations between satellites.

It is this technological challenge that the CanX-4 and CanX-5 satellites have met and overcome, having achieved relative position determination to a few centimeters and relative position control to within one meter in sustained formations in space.

The accomplishments of the CanX-4 and CanX-5 mission are international firsts – never before has this level of precision been demonstrated on satellites this small and this inexpensive. CanX-4 and CanX-5 have opened the door to low-cost, rapidly developed operational formation flying missions using nano-, micro- and small satellite platforms. This in turn has expanded the potential applications for such classes of satellite, and changed the paradigm of how certain missions may be implemented in the future – from big satellite to multiple, small, and less expensive satellites working in tandem.

The Alouette Award recognizes an outstanding contribution to Canadian space technology, application, science or engineering by an individual, organization or group of organizations. CanX-4 and CanX-5, having demonstrated precise, autonomous formation flying on the smallest satellites ever to have accomplished such a feat, have achieved what other space-faring nations are still struggling to do, and has put Canada in the spotlight of pioneering technological advances in space, in keeping with the best Canadian tradition. Not only has the mission propelled Canada to the forefront of state-of-the-art small satellite performance, but it has also opened the door to new missions and applications for domestic and international end users that were previously not within reach due to cost and/or the availability of such technology.

The accomplishments of CanX-4 and CanX-5 are a game-changer, and expand the boundaries of the addressable market for small satellite missions around the world.

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