

PROGRAMME
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12TH INTERNATIONAL KIMBERLITE CONFERENCE

30 YEARS OF
DIAMONDS
IN CANADA

8-12 July 2024 • Yellowknife

PROGRAMME





*Dr. Chris Jennings
and
Jeanne Jennings*



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DIAMOND MINES

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12 IKC 2024 Programme at a Glance

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	07 July	08 July	09 July	10 July	11 July	12 July	13 July
	Available Field Trips* FT03/FT04/FT06/FT07		Available Field Trip* FT06		Available Field Trip* FT06		Available Field Trips* FT04/FT05B
AM	Registration desk open from 10:00- 18:00	Conference Opening	Keynote 3	Keynote 4	Diamonds Keynote 5	Keynote 6	
		Keynote 1	Cratonic Mantle	Diamonds		Diamond Deposits - Exploration and Mining	
		Keynote 2					
		Emplacement and Economic Geology of Kimberlites and Related Magmas					
PM	An Indigenous Perspective on the 30 Years of Diamonds in Canada	Seminar: Kimberlitic Olivine: Tracking Mantle Cargo and Kimberlite Melt Evolution	Cratonic Mantle	Diamonds Seminar: Large Irregular Type II Diamonds: Genesis and Transport to Surface	Diamond Deposits - Exploration and Mining	The Origin and Evolution of Kimberlites and Related Magmas Keynote 7 Conference Closing	
		Poster Session	Poster Session		Poster Session		
		ICEBREAKER		BEER BARGE		FAREWELL DINNER	

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WELCOME TO 12 IKC AND YELLOWKNIFE

Welcome to Yellowknife, the capital of Canada's Northwest Territories and the **Diamond Capital of North America**. Hosting of the 12th International Kimberlite Conference (12 IKC) in Yellowknife is particularly appropriate as the conference celebrates '30 Years of Diamonds in Canada' and '50 Years of International Kimberlite Conferences'.

While Yellowknife's origins were in gold mining, diamonds were discovered in 1991. Since Canada's first diamond mine (Ekati) commenced production in 1998, Canada has joined the ranks of the great diamond producing countries by becoming the third largest producer of diamonds by value after Botswana and Russia. The Northwest Territories is where it all started and three mines remain in operation: Ekati (Burgundy Diamond Mines), Diavik (Rio Tinto) and Gahcho Kué (De Beers / Mountain Province Diamonds).



The Organising Committee, together with our mascot *Tindi*, welcome you to 12 IKC hosted in two adjacent conference hotels, the Explorer and the Chateau Nova from 8 to 12 July 2024. In the tradition of previous IKC's, we have a unique-to-Yellowknife social programme aimed at maximising the opportunity for delegates to network with each other as well as meet key members of the local community. The conference also offers an array of pre- and post-conference field trips that include showcasing the three operating diamond mines in the Northwest Territories, the geology of one of Earth's best exposed cratons, the Slave Craton, a short course on Advances in Glacial Drift Prospecting for Kimberlites, and a tour of a first-of-its-kind high-tech diamond polishing facility in Yellowknife.

As with previous IKC's, this conference brings together geoscientists from both the academic and exploration/mining communities to share their knowledge, stimulate scientific debate and further our understanding of the geology of kimberlites, diamonds, cratons and related subjects. Each of the five conference scientific themes will have keynotes as well as special opening and closing keynotes. In addition, for the first time, 12 IKC will convene two Seminars covering two emergent scientific topics (#1: *Kimberlitic Olivine: Tracking Mantle Cargo and Kimberlite Melt Evolution*, and #2: *Large Irregular Type II Diamonds: Genesis and Transport to Surface*).

The idea for IKC's began in late 1970 when John Gurney and others, at a meeting in Houston, discussed the possibility of a kimberlite conference being held in southern Africa to bring

together scientists interested in kimberlites, diamonds and the upper mantle. With the enthusiastic support of Barry Hawthorne (then Chief Geologist for De Beers) and Peter Nixon in Lesotho this became a reality. The 1 IKC was held at the University of Cape Town in 1973.

International Kimberlite Conferences have a proud history of awarding significant financial support, typically for about thirty individuals, primarily students, to attend each conference. The 12 IKC is pleased to continue this tradition with financial support being provided to 38 individuals from 11 countries on 5 continents to attend this conference.

The 12 IKC Organising Committee is extremely grateful to all the Cullinan, Diamond, Gold, Silver, Bronze and Pyrope Sponsors as well as In Kind Sponsors for making 12 IKC happen. Without such sponsorship IKCs would not be possible.

Enjoy the conference and your stay in Yellowknife, the gateway to Canada's North on the shores of Great Slave Lake! We hope you experience the warmth of our northern hospitality and our extremely long summer days.

12th International Kimberlite Conference

Executive Committee



ORGANISING COMMITTEE

Convenor: John Ketchum

Co-Convenors: Andy Leszczynski and Pamela Strand

Executive Lead: Barbara Scott Smith

Executive Committee:

John Ketchum,	Graham Pearson,	Thomas Stachel,
Andy Leszczynski,	Barbara Scott Smith,	Pamela Strand,
Rory Moore,	Stuart Smith,	Gary Vivian

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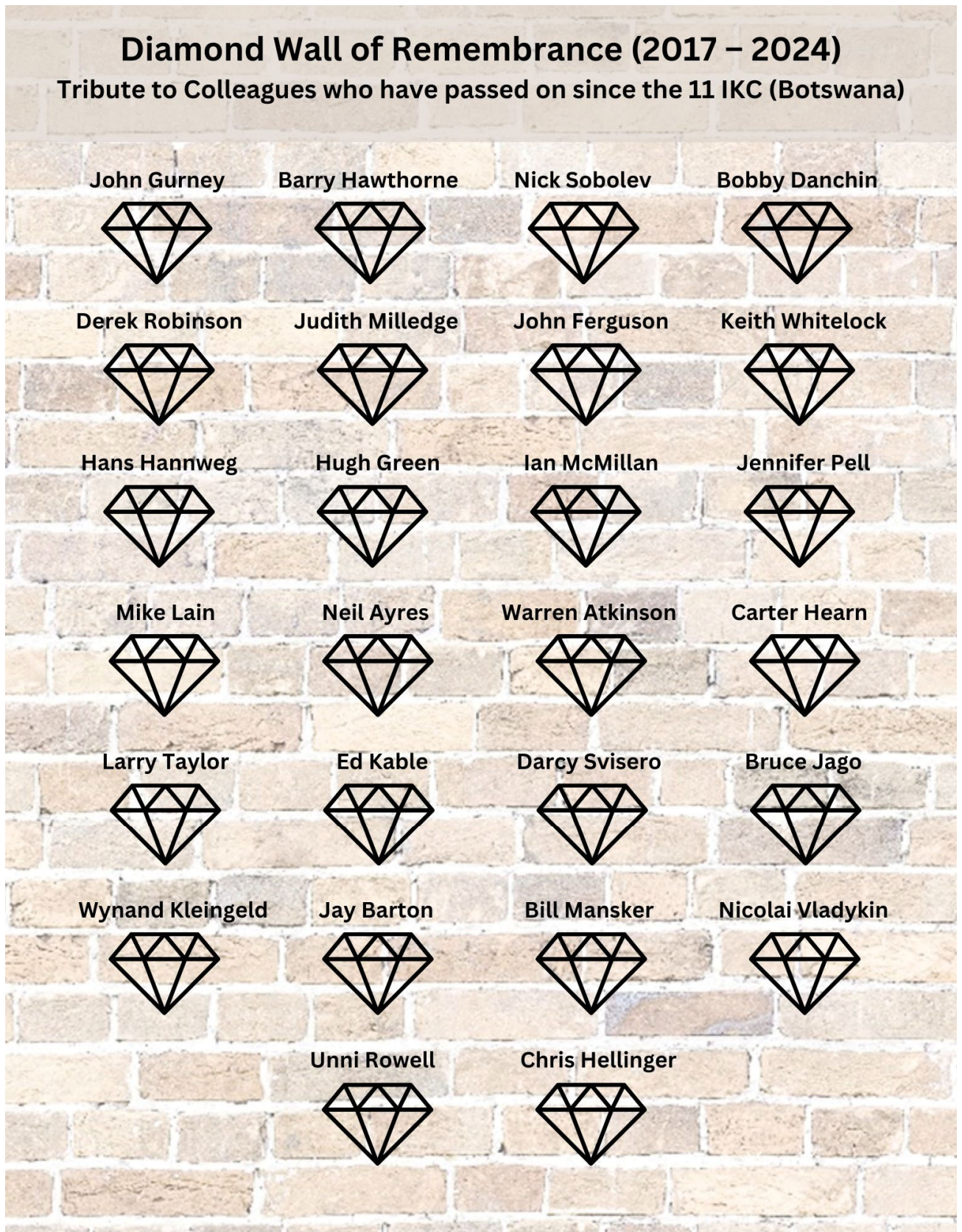
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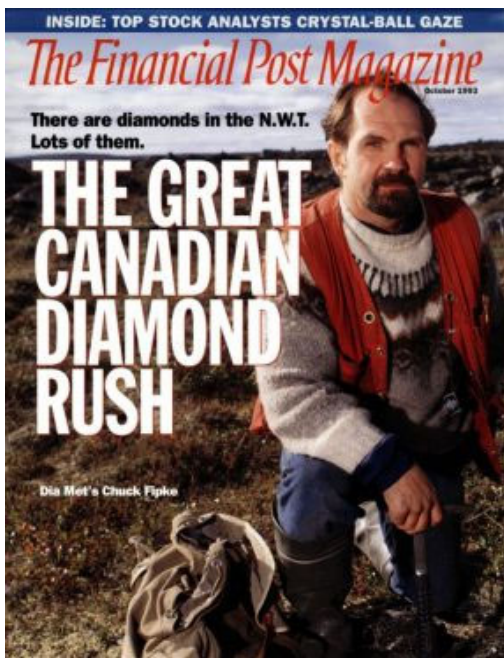


DIAMOND WALL OF REMEMBRANCE



30 YEARS OF DIAMONDS IN CANADA

The discovery of economic diamond deposits in the Lac de Gras area of the Northwest Territories is a story of dedicated commitment and perseverance. The search began in 1981 with an investigation of the Mountain Diatreme located in the Mackenzie Mountains, southwest of Norman Wells, NWT. In 1982, Charles Fipke and Stewart Blusson of Dia Met Minerals, with assistance from Hugo Dummett of Superior Oil, sampled areas around Blackwater Lake 490 km west of Yellowknife and recovered kimberlite indicator minerals with compositions consistent with diamond-bearing source rocks. This led to a systematic tracking of a trail of indicator minerals during the following ten summers over a distance of six hundred kilometres to the east.



Financial Post Magazine Front Cover for October 1993 showing Dia Met's Chuck Fipke.

By 1990, Fipke and Blusson had established that the likely source for the indicator minerals was in the Lac de Gras region and the staking of a large land package was initiated. Later that year, an exploration agreement was negotiated with Hugo Dummett who had since joined BHP Minerals. In early 1991, while investigating a lake in the southeastern part of the claim block that Fipke thought was crater-like in appearance, his son Mark discovered a large bright green Cr-diopside crystal on a ridge immediately down-ice from the lake. This critical piece of evidence added confidence to Fipke's theory that Point Lake hosted a kimberlite pipe, which prompted an immediate ground magnetic survey by geophysicists from BHP. When a compelling magnetic anomaly was evident, the target was immediately drill tested. In September 1991, an angled core hole drilled from the eastern shore of Point Lake intersected kimberlite at

a depth of 137 metres downhole. The subsequent announcement by BHP and Dia Met Minerals to the Vancouver Stock Exchange in November 1991, that 81 diamonds had been recovered from a 59-kilogram sample of kimberlite core from the discovery hole, triggered the largest staking rush in Canadian history. Within a few months of the announcement, most of the area between Yellowknife and the Arctic coast was blanket staked by exploration and mining companies, prospectors and stock market entrepreneurs eager to discover Canada's first diamond mine.

By December 1993, BHP had signaled its commitment to develop Canada's first diamond mine by submitting a Project Description Report to the Department of Indigenous and Northern Affairs. Final approval to build a mine was received from the federal cabinet in November 1996 following a full Environmental Impact Statement, a thorough review process involving the NWT Water Board, the Federal Department of Fisheries and Ocean, extensive public hearings and the negotiation of Impact and Benefits Agreements with the local indigenous groups. After an intense

construction period, Canada's first diamond mine, Ekati, was officially opened on 14 October 1998.



Ekati, Canada's first diamond mine, Northwest Territories. Open pits in foreground from back left to right: Koala, Koala North, Panda and Beartooth kimberlite pipes.
Photo courtesy of Burgundy Diamond Mines

One of the first companies to respond to the Point Lake announcement was a small private company run by Lee Barker and Gren Thomas called West Viking Exploration. Barker and Thomas immediately started staking in the area to the south of the BHP/Dia Met claim block and were successful in securing the ground where the Diavik Diamond Mine was subsequently developed. With a good land position secured, West Viking merged into Aber Resources which subsequently signed an option agreement to explore the claims with Kennecott Canada Inc, a subsidiary of Rio Tinto plc.

The Kennecott/Aber team got to work quickly and soon found more than 30 kimberlite pipes, but none had any significant quantities of diamonds. The first major discovery was made in March 1993, with a kimberlite pipe called A21. However, an even more exciting discovery was to come the following year. Just before the ice started to break up in 1994, after about 10 days of unsuccessful drilling on a promising looking target, the team decided to gamble with one last hole for the season. They moved the rig about 15 metres to the south and finally hit kimberlite just as the ice was failing and they were forced to pull the rig off of Lac de Gras. Later that night when Aber geologists Robin Hopkins and Eira Thomas were inspecting the newly discovered kimberlite core, they broke a piece of kimberlite along a natural fracture. On one side of the core they saw a large indentation and on the other side was a two and a half carat gem quality diamond! The target they drilled that day was A154, which was subsequently developed into one of the richest kimberlites ever to be mined in the world, one of the pipes mined by Diavik Diamond Mine. After the discovery of A154 in 1994, the Aber/Kennecott joint venture arrangements were assigned into the Diavik Diamond Mines joint venture, which went on to successfully complete a feasibility study to mine the A154N, A154S, A418 and A21 pipes. After a similar review process to that undertaken for Ekati, the Diavik Mine was successfully constructed and commenced commercial production in January 2003.



Gren Thomas in the early days of the Diavik Diamond Mine, Northwest Territories.



Victor Mine, northern Ontario, May 2019.
Courtesy: De Beers Group.

In 1987-1988, before the historic 1991 Point Lake announcement, De Beers Group, using systematic sediment sampling and geophysics, discovered the Attawapiskat Kimberlite Field in the James Bay Lowlands of northern Ontario, approximately 90 km west of the community of Attawapiskat First Nation. Within this Kimberlite Field the largest kimberlite was shown to be economic and the Victor Mine, Ontario's first and only diamond mine, opened in 2008. Open pit mining and processing activities were completed by mid-2019. Active closure commenced in July 2019 with substantial completion of closure during the second half of 2023 followed by long-term monitoring until at least 2039. It was estimated that De Beers Victor Mine contributed C\$6.7 billion to Ontario's GDP during the life of the mine.

At the same time when Victor was found in northern Ontario, De Beers Group following up other systematic sampling discovered the first kimberlite in the Canadian Prairies. The Sturgeon Lake 01 kimberlite is located 35 km west of Prince Albert, Saskatchewan.

This and a second kimberlite found nearby were determined not to be in situ pipes but glacially transported megablocks. In 1989 Uranerz Exploration and Mining Limited discovered the Fort à la Corne kimberlite province approximately 60 km east of Prince Albert. Since then, exploration at Fort à la Corne has been ongoing with the following different joint venture partners including Cameco Corporation, De Beers Canada Inc. and Kensington Resources Ltd. In 2005 Shore Gold Inc., with participation from Newmont Mining Corporation, gained control of the Fort à la Corne Joint Venture and focused on the evaluation of the Star and Orion South kimberlites. By mid-2017, Star Diamond Corporation (formerly Shore Gold Inc.) announced an agreement with Newmont, converting their project interest to an equity interest, thereby Star Diamond held 100 percent of the mineral dispositions covering the Fort à la Corne kimberlites. Simultaneously, Star Diamond announced an option to joint venture agreement with Rio Tinto Canada Exploration Inc.. In 2018 Star Diamond published a Preliminary Economic Assessment (PEA) for the Star and Orion South kimberlites, located at the southeast end of a chain of some sixty kimberlites, many of which have been shown to contain diamonds. The PEA estimates that these two kimberlites contain potential plant feed of some 470 million tonnes of kimberlite, at a weighted average grade of 14 cpht, containing some 66 million carats that can be produced over a 34-year life of mine. Early in the evaluation of these kimberlites it was noted that the dominant kimberlite units contain diamond populations with anomalously coarse size frequency distributions. More recently it has been determined that these diamond populations contain unusually high proportions of Type IIa diamonds. The coarse diamond size frequency distributions and the significant proportions of Type IIa diamonds contribute to the diamond price estimates for Star and Orion South that approach an average of US\$200 per carat. In March 2024, Star Diamond acquired Rio Tinto's 75

percent interest in the Fort à la Corne Project to hold 100 percent of the claims covering the majority of the Fort à la Corne kimberlites, in addition to the bulk sample plant and the trench cutter drilling equipment. Star Diamond is presently updating the Mineral Resource estimate on the Star and Orion South kimberlites, by integrating all underground bulk sampling, large diameter drilling and trench cutter drilling diamond data. This revised Mineral Resource Estimate will form the foundation of an updated Prefeasibility Study, followed by a Feasibility Study, on which a mining decision can be made.



High Value Diamonds from the Star and Orion South kimberlites: clockwise from the top left: 10.53 carat Orion South fancy yellow; 5.39 and 4.77 carat IF octahedra from Star, 15.88 carat Type IIa from Orion South; and 11.96 carat Type IIa from Star.

Diamond exploration work in the Northwest Territories and Nunavut in the early 1990's resulted in other significant discoveries. Approximately 160 km north of Ekati and Diavik, the Jericho Kimberlite was discovered in 1994 by Canamera Geological Ltd. Tahera Diamond Corporation operated the Jericho Mine in 2006-2007. Canamera Geological Ltd in 1995 also discovered the 5034 kimberlite at Kennady Lake, approximately 280 km northeast of Yellowknife.



Gahcho Kué Mine, Northwest Territories, March 2018

A joint venture between De Beers Group, Mountain Province Mining and Camphor Ventures Canada continued exploration, and discovered and evaluated additional kimberlites leading to the opening of the Gahcho Kué Mine in 2016. This mine is a joint venture between De Beers Canada Inc. (51%) and Mountain Province Diamonds Inc. (49%). Gahcho Kué is an open pit operation, mining three kimberlite pipes in sequence: 5034, Hearne and Tuzo, and its current life of mine is estimated to 2030. The joint

venture partners are actively seeking to extend the life of mine, including a possible underground operation following the discovery of additional kimberlite associated with the Hearne resource, although no decisions have been made at this time.

In 1996 Aber Resources Ltd and Winspear Resources Ltd discovered the Snap Lake kimberlite located 220 kilometres northeast of Yellowknife. The project was acquired by De Beers Canada in 2000 and the Snap Lake Mine opened in 2008, becoming the first De Beers Group mine outside Africa and Canada's first all-underground diamond mine. The Snap Lake ore body is an on average

2.8-metre-thick dyke that dips an average of 12° to 15°. The Mine operated until December 2015 when it was placed into care and maintenance. In April 2022, Snap Lake entered active closure, which is expected to be substantially complete by the second half of 2024, to be followed by long-term monitoring.



Process Plant. Renard Mine. Quebec.

In 2001 the Ashton Mining of Canada Inc. – SOQUEM Inc. Joint Venture discovered the Renard kimberlites in the Otish Mountains area, approximately 250 km north of the Cree community of Mistissini and 350 km north of Chibougamau in the James Bay region of north-central Québec. Ashton was acquired by Stornoway Diamond Corporation in 2006.

The Renard Diamond Mine, Québec's first and only diamond mine, officially opened in October 2016 with commercial production declared on 01 January 2017. The mine is operated by Stornoway Diamonds Canada Inc, a Canadian diamond exploration and production company headquartered in Longueuil. Stornoway is owned by Osisko Gold Royalties LTD, Investissement Québec, TF R&S Canada LTD and CDPQ. As of 27 October 2023, the mine was put into care and maintenance due to a depressed diamond market. In April 2024, Winsome Resources entered into a binding agreement with Stornoway to secure an option to acquire the Mine. Winsome Resources has no plans to continue diamond mining and would use the existing infrastructure and processing plant to treat lithium bearing material from their Adina project.

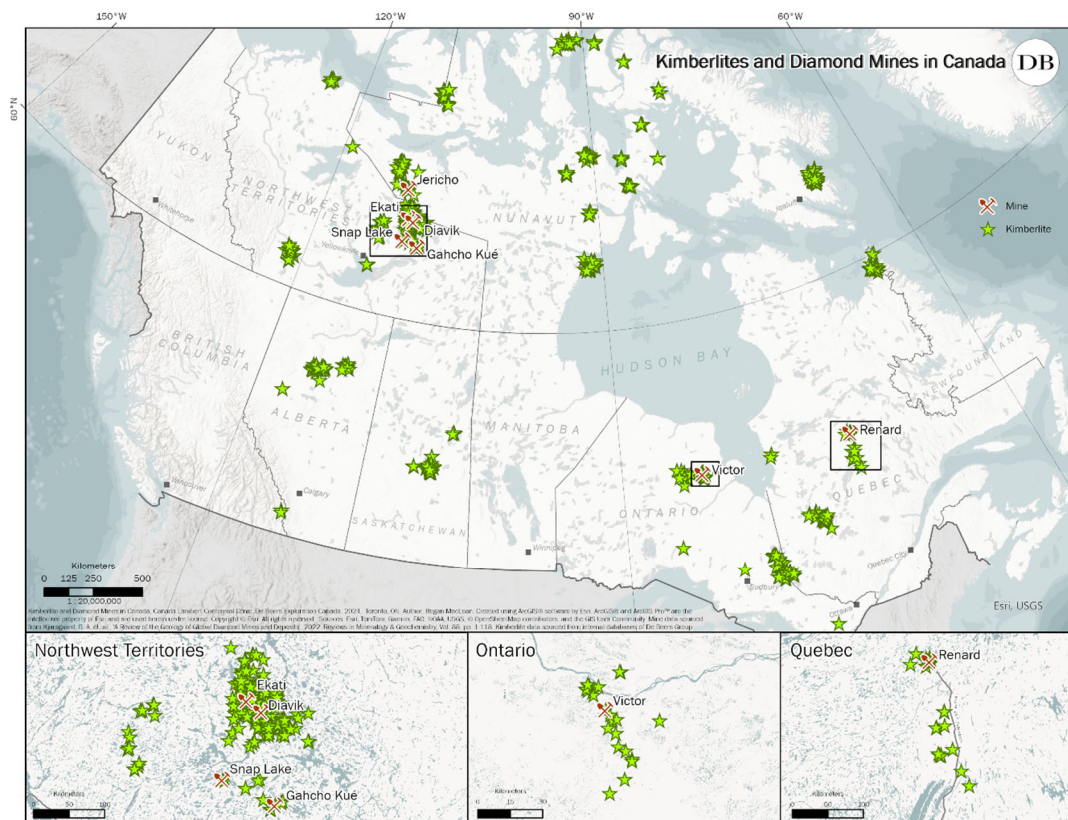
In 2008, the first kimberlite on the Chidliak property was discovered by Peregrine Diamonds Ltd on the Cumberland Peninsula, Baffin Island, Nunavut Territory, about 120 km from the territorial capital, Iqaluit. Further exploration through 2014, defined an 80 km by 60 km province of 71 kimberlites on the Chidliak claims and an additional three on the adjacent Qilaq claims. De Beers Canada acquired the Chidliak Project in September 2018 as part of the purchase of Peregrine Diamonds Ltd. In 2019, 35 kimberlites were prioritized and 41 mining leases covering 42,000ha were recorded. Two kimberlites, CH-6 and CH-7, both inferred level resources, are estimated to contain about 21 million carats at an estimated grade of about 1.8 carats per tonne. The Chidliak Project is being advanced sustainably, including a focus on low carbon energy, modular, movable and connected infrastructure, low water use, and autonomous operations. The Project has been paused in line with De Beers strategy given the current market environment however, the multi-year permitting work continues.

In 2012 in the Northwest Territories, Kennady Diamonds Inc. began exploring on claims adjacent to the property that would become the Gahcho Kué Mine. Over the next four years, three kimberlites were discovered which together contain 18 million carats of diamonds. These kimberlites are unique in Canada because they are unconventional irregular-shaped inclined pipe-

like bodies. Although they are not being mined, they could contribute to operations at the nearby Gahcho Kué Mine at some point in the future.

12 IKC is celebrating the '30 Years of Diamonds in Canada' outlined above during which hundreds of kimberlites were discovered across Canada leading to the opening of seven mines and Canada becoming one of the top three diamond producers in the world (by value). Three mines are currently still in operation, namely Ekati (Burgundy Diamond Mines), Diavik (Rio Tinto) and Gahcho Kué, (De Beers / Mountain Province Diamonds) as shown in the map below.

Hundreds of kimberlites have been found across Canada during the '30 Years of Diamonds in Canada' plus. During this period the first ~ 100 pipes were found in 1988-1989 at Attawapiskat, Ontario and Fort à la Corne, Saskatchewan. The largest staking rush in Canadian history that followed the announcement by BHP and Dia Met Minerals in November 1991 of the Point Lake discovery resulted in hundreds more kimberlites being found across Canada as shown in the map below (courtesy of De Beers Group).



MEET TINDI, THE 12 IKC MASCOT

“Tindi” is a twin otter, an aircraft able to service remote areas without ground access, such as the Canadian North. Twin otters are a specific type of bush plane developed and made in Canada, which first flew on 20 May 1965 and are still in production. They are versatile passenger/cargo twin-engine planes that are a stalwart for accessing the very remote Canadian Arctic and Sub-Arctic. They are capable of landing on short natural ground strips using tundra tires in the summer, a significant requirement to access very remote areas. In the winter, the twin otter can land on frozen lakes using wheel skis and/or skis, and in the summer using float-equipped aircraft. Tindi is an essential necessity in the Canadian North.

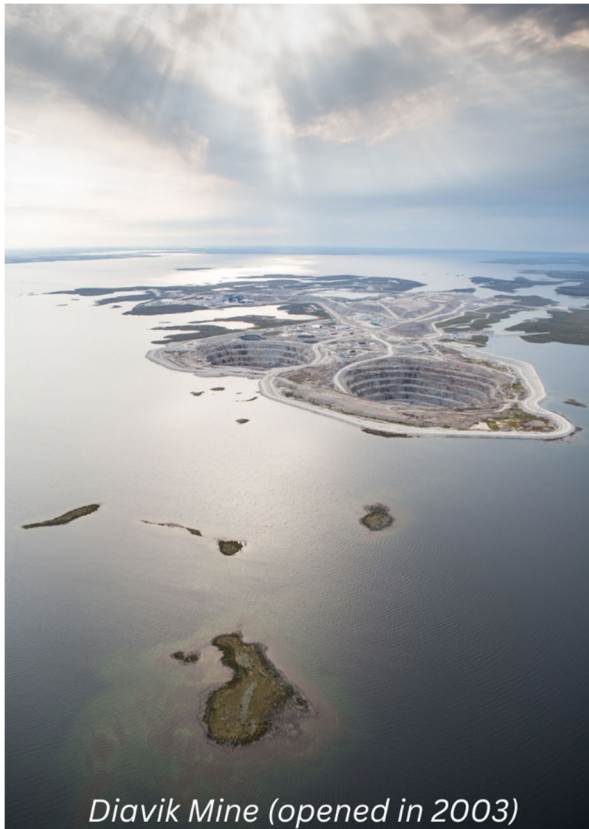


Tindi means “big lake” in one of the local First Nations languages Tłıchʼo Yatıı (or Tli Cho) and refers to Great Slave Lake (469 km long), which is the second-largest lake in the Northwest Territories and the tenth-largest lake in the world (by area). Bush planes first landed in the north in 1929 starting a new charter air industry, and twin otters became the backbone of the mining cycle.

As the area became more accessible, the gold boom began leading to the opening of the Con and Giant Gold Mines in 1938 and 1948, respectively, along with a number of other smaller mines. During the gold boom, Yellowknife, located on the northern shore of Great Slave Lake became the centre of economic activities, was named the Capital of the Northwest Territories in 1967 and is the gateway to the Canadian North. Not long after the diamond rush started, all the gold mines had closed down by 2004. In 1980 a new generation of aviators arrived, including the Arychuk family, who in 1988 started a little bush airline called Air Tindi. After some tough early years, the Canadian Diamond Rush began in the 1990s, and Air Tindi grew bigger and busier servicing the diamond industry from early exploration to ongoing mining. Air Tindi is the only airline to service



diamond exploration and mining through the full history of the Diamond Rush, and more. Yellowknife, the diamond capital of North America, is the perfect place to hold 12 IKC, and allows the conference an opportunity to celebrate ‘30 Years of Diamonds in Canada’. There are currently three operating diamond mines near Yellowknife (Ekati, Diavik and Gahcho Kué).



Diavik Mine (opened in 2003)



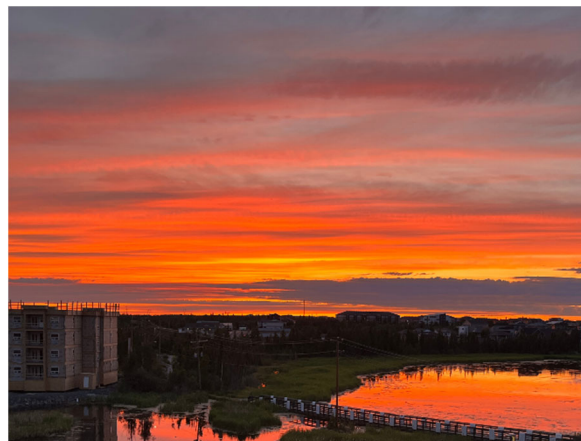
Ekati Mine (opened in 1998)



Gahcho Kué Mine (opened in 2016)

Air Tindi, best known for the eight twin otters currently in its diverse fleet, enthusiastically supported using the name “Tindi” for the 12 IKC mascot, which as you can tell, is a twin otter. They will be providing charter flights for the 12 IKC Field Trips (FT01). In 2018 Air Tindi celebrated 30 years of operation (Braden 2018, *The Air Tindi Story: Flying the Burgundy Tail for 30 Years*. Published by Air Tindi; photo bottom left).

“Tindi” is depicted during a Sub-Arctic midnight sunset with inukshuk-like reflections on the lake below and black spruce trees on the land. During the 12 IKC in July 2024, there will be no true darkness as the sun only sets for a brief period of time during the summer. This photo (bottom right) was taken during the July 2023 site visit to Yellowknife, and we hope you will get to enjoy similar views during the conference.



50 YEARS OF KIMBERLITE CONFERENCES



**INTERNATIONAL
CONFERENCE
ON KIMBERLITES**

**SECOND
INTERNATIONAL
KIMBERLITE
CONFERENCE
1977**

**THIRD
INTERNATIONAL
KIMBERLITE
CONFERENCE
1982**



**FOURTH INTERNATIONAL
KIMBERLITE
CONFERENCE**



**FIFTH
INTERNATIONAL
KIMBERLITE
CONFERENCE**

**Sixth
International
Kimberlite
Conference**

**RUSSIA
1995**



**12TH INTERNATIONAL
KIMBERLITE
CONFERENCE**

**30 YEARS OF DIAMONDS IN CANADA
8-12 July 2024 • Yellowknife**





1IKC



1IKC



1IKC



2IKC



2IKC



2IKC



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4IKC



4IKC



5IKC



6IKC



7IKC



7IKC



8IKC



10IKC



10IKC



9IKC



11IKC



11IKC

CONFERENCE VENUES

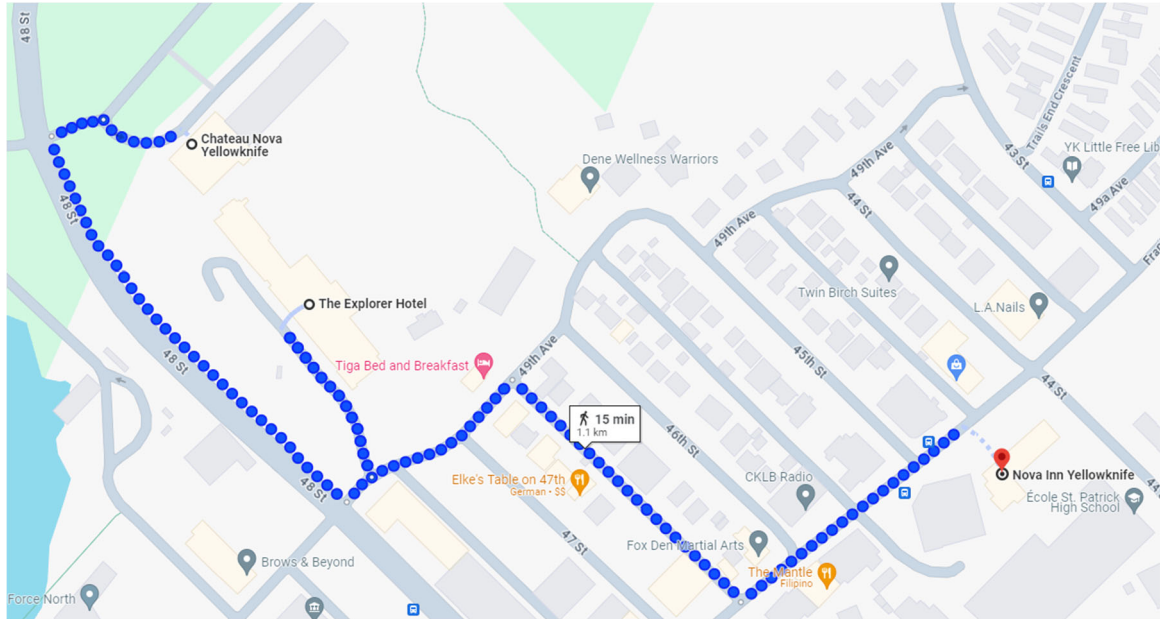
The conference will be held at Yellowknife's two main hotels: the Explorer Hotel and the Chateau Nova hotel. The two venues are located on adjacent properties within 5 minutes walking distance of each other. The Oral Sessions will be held in the Chateau Nova and the Poster Sessions in the Explorer Hotel, maximising the opportunity for delegates to network with the kimberlite and diamond community.

- **Chateau Nova, 4571 48 Street, Yellowknife – LECTURE HALL**
- **Explorer Hotel, 4825 49 Avenue, Yellowknife – POSTER HALL**



CONFERENCE HOTELS

If you are staying at any of the 12 IKC recommended hotels, you are only a short walk away from the technical programme venues.



GENERAL CONFERENCE INFORMATION

Registration Desk

The Registration Desk is located at the Chateau Nova on Level 3 next to the entrance to the Caribou Room Foyer and will be open during the following times:

- Sunday 7 July 10:00 – 18:00
- Monday 8 July 07:30 – 17:00
- Tuesday 9 July 07:30 – 17:00
- Wednesday 10 July 07:30 – 17:00
- Thursday 11 July 07:30 – 17:00
- Friday 12 July 07:30 – 16:00

Name Badges

For security purposes, delegate name badges must be worn at all times including social events. All badges will have a coloured band at the bottom to denote different categories of attendees.

Accompanying Persons

Guests who have registered as an accompanying person should collect their name badges from the Registration Desk.

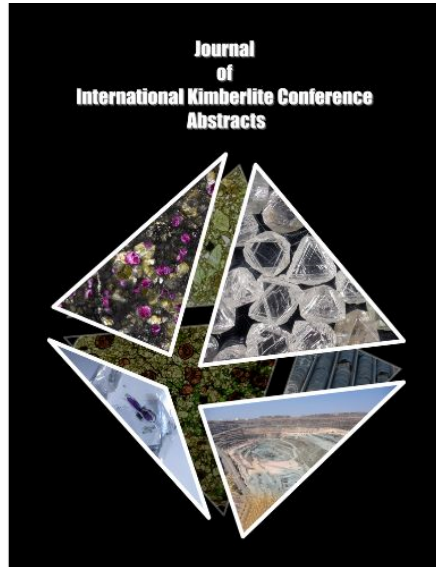
Conference delegate registration fee includes

- Technical Programme – Oral and Poster Sessions and Seminars
- Morning Coffee Breaks
- Lunches
- Afternoon and Seminar Coffee Breaks
- Poster Session Bars (with Cash Bars)
- Delegate Bag with Conference Programme Book and other materials
- Indigenous Event on Sunday 7 July
- Social Events (with Cash Bars)
 - Sunday 7 July Icebreaker at Somba K'e Civic Plaza
 - Wednesday 10 July Beer Barge at Yellowknife Historical Museum
 - Friday 12 July Farewell Dinner at Acasta Heliflight Hangar

Long Abstracts

12 IKC Long Abstracts are available during the conference by clicking the title of each presentation in the Technical Programme posted on the 12 IKC website <https://12ikc.ca/oral-technical-programme/>.

The long abstracts are also published and available in the online Journal of International Kimberlite Conference Abstracts (JIKCA) at <https://ikcabstracts.com/index.php/ikc>.



12 IKC T-Shirts

12 IKC branded T-Shirts will be available in both black and white and will be on sale at the Registration Desk.

Internet

Complimentary Wi-Fi will be provided at the Conference Venues.

Dietary Restrictions

If you have indicated any special dietary requirements when registering for the conference, the caterer has been notified of your needs. If you did not include your special dietary restrictions during the registration process, please advise the staff at the Registration Desk. Please note that we cannot guarantee that last-minute requests will be accommodated.

General Assistance

If you have other questions, please visit the Registration Desk to assist you.

INDIGENOUS PROGRAMME

To celebrate and showcase indigenous participation in the Canadian diamond industry, a workshop entitled “An Indigenous Perspective on 30 Years of Diamonds in Canada” will be held from 14:00 to 17:00 on Sunday 7 July 2024 in the Caribou Room at the Chateau Nova hotel.

With a combination of informative speakers and thoughtful panel discussions, this session will offer the opportunity to learn about how the local indigenous people of the north and the diamond industry have partnered in a mutually beneficial way over the past 30 years.

14:00 to 14:30 – Kathy Racher – Executive Director, Mackenzie Valley Land & Water Board

A short presentation from the Executive Director at the Mackenzie Valley Land & Water Board providing a summary of the current project review process in the NWT, and a board perspective on what has gone well with respect to the diamond industry and things that might be done better.

14:30 to 15:30 – Panel #1: Employment and Business Impacts of 30 Years of Diamonds in the North

Moderator: Wally Schumann – NWT Métis Nation

Panelists:

- Paul Gruner – CEO, Tłıchq Investment Corporation
- Mark Lewis – CEO, Det’on Cho Group of Companies
- Marc Whitford – CEO, Metcor Inc.
- Leigh-Anne Palter – CEO, Denesoline Corporation

15:30 to 16:00 – Coffee Break

16:00 to 17:00 – Panel #2: Personal Stories of How the Diamond Industry in the North has Impacted Individual Indigenous Lives

Moderator: Gaeleen MacPherson – Tłıchq Nation

Panelists:

- Wally Schuman – NWT Métis Nation
- Darryl Bohnet – NWT Métis Nation
- Dianna Beck – Yellowknives Dene First Nation
- Violet Camsell – Tłıchq Nation

Panel Format:

- Moderator Introduction (5 min).
- Each panelist has 5 minutes to describe themselves and/or their business (20 min).
- Moderator questions to the panel (20 min).
- Open discussion with questions from the audience (15 min).

NORTHERN ARTS MARKET

A Northern Arts Market featuring northern and indigenous artists will be held alongside the Icebreaker Function in the Somba K'e Civic Plaza in front of City Hall on Sunday July 7. The artists will be selling original northern and indigenous art and fine crafts. Delegates will get the opportunity to browse and purchase art pieces prior to, or during the Icebreaker function. Some vendors will accept credit cards but best to have some cash on hand. There is an ATM machine in Somba K'e Park. Open to the public. No charge.

SOCIAL PROGRAMME

Note: All 12 IKC social events are outdoors or partly outdoors, and dress is casual. Please be prepared for changes in weather and dress accordingly. Cash Bars will be at all three 12 IKC Social Events: VISA, MasterCard and cash are accepted.

Social Events are only open to registered delegates and their registered Accompanying Persons.

Sunday 7 July – Northern Arts Market

17:00-21:00 – Somba K’e Civic Plaza in front of City Hall (within walking distance of conference hotels). Open to the public. No charge.

A special Arts Markets will be held alongside the Icebreaker. Northern and indigenous artists will be selling unique and original art and fine crafts. Delegates will get the opportunity to browse and purchase art pieces prior to, or during, the Icebreaker Event. Some vendors will accept credit cards but best to have some cash on hand. There is an ATM machine in Somba K’e Park.

Sunday 7 July – Icebreaker Evening: Diamonds and Ice

Sponsored by Burgundy Diamond Mines

18:00-23:00 – Somba K’e Civic Plaza in front of City Hall

(within walking distance of conference hotels)

Dress: Casual; flat shoes recommended (grass under foot).



Tuesday 9 July – Yellowknife Farmers Market

17:15-19:15 – Somba K’e Civic Plaza in front of City Hall (within walking distance of conference hotels). Open to the public. No charge.

Walk over and browse between 40 and 50 pop-up tents featuring specialty foods, crafts, and items by local artisans. This is a summer ritual in Yellowknife, a marketplace to purchase locally baked, cooked, processed and harvested goods.

Wednesday 10 July – Beer Barge

Sponsored by Dr Stewart and Marilyn Blusson

18:00-23:00 – Yellowknife Historical Museum, on the Ingraham Trail

*Dr. Stewart
and
Marilyn Blusson*

Transport: Buses will depart from Chateau Nova, Explorer Hotel and Nova Inn starting at 18:00. If you miss the bus to the venue, please take a taxi. Return buses to these hotels will start at 21:00; last bus is at 23:00.

Dress: Casual; flat shoes recommended (rough ground and exposed rock).



Explore the newly opened Museum located on the shore of Great Slave Lake. Fresh fish from the lake is the main item on the buffet.

Dance Music: The Stray Dogs.

Friday 12 July – Farewell Dinner: Bush Flying Bash

Sponsored by De Beers Group

DE BEERS GROUP

18:00-23:00 – Acasta Heliflight Hangar, near the Yellowknife Airport

Transport: Buses will depart from Chateau Nova, Explorer Hotel and Nova Inn starting at 18:00. If you miss the bus to the venue, please take a taxi. Although the last buses depart at 23:00, the party does not have to stop. For those who would like to continue, delegates can be dropped off at their hotels or the legendary Gold Range Bar.

Return buses to these hotels as well as the Gold Range Bar will start at 21:00; last bus will be at 23:00.

Dress: Casual; flat shoes recommended (asphalt and concrete underfoot). A perfect time to wear your 12 IKC T-Shirt (available for purchase at the Registration Desk)!

Dance Music: Priscilla's Revenge.

All Conference Lunches

Sponsored by Dr Chris Jennings and Jeanne Jennings

*Dr. Chris Jennings
and
Jeanne Jennings*

Coffee Breaks sponsored by



ACCOMPANYING PERSONS PROGRAMME

Day Tour 1: Monday 8 July – Lunch and City Tour

Meet and Greet: 10:15 in the Explorer Hotel Restaurant for coffee and tea.

Transport: Bus will pick up guests at 11:00 for lunch at Bullock's Restaurant in Old Town. After lunch, guests board the bus for Orientation and City Tour of Yellowknife. At the end of the tour, the bus will drop guests back to hotels at approximately 16:00.

Dress: Casual; be prepared for inclement weather.

Day Tour 2: Tuesday 9 July – Boat Cruise, Shore Lunch, and Visit to Nature's North Gallery

Meet and Greet: 10:15 in the Bush Pilot's Room in the lobby of the Explorer Hotel for coffee and tea.

Transport: Bus will pick up guests at 10:45 and take them to the dock for the Boat Cruise and Shore Lunch. After the cruise and lunch guests will return to the dock and then be taken by bus to Nature's North Gallery. The bus will drop guests back at the hotel at approximately 16:00.

Dress: Casual; rubber-soled or flat shoes suitable for boating; please take sunscreen, sunglasses, hat, and a light rain/wind jacket or sweater (the wind from the lake can be cool). Be prepared for inclement weather.

12 IKC Social Events

Information on the three Social Events (Sunday Icebreaker, Wednesday Beer Barge and Friday Farewell) is provided in the Social Programme section on page 26. Social Events are only open to the registered delegates and their registered Accompanying Persons.

12 IKC Field Trip 06

APs are encouraged to sign up for Field Trip FT06 – a tour of **Diamonds de Canada**, which is walking distance from the conference hotels. This Field Trip is an opportunity to learn about a state-of-the-art technology applied to the process of cutting rough diamonds as well as viewing and purchasing diamonds. This 60-minute tour is a unique trip you do not want to miss!

This Field Trip is offered on Sunday 7 July, Tuesday 9 July and Thursday 11 July. It is recommended that APs sign up for the Thursday morning Tour.

12 IKC Poster Sessions

APs are also welcome to attend the three poster sessions to view the Diamond Sponsor Booths and network with others over a drink. The Poster Sessions are at the Explorer Hotel from 16:15 on Monday, and 16:00 on Tuesday and Thursday until 19:00.



FIELD TRIPS

Each IKC features a selection of Field Trips unique to the conference location. The 12th International Kimberlite Conference is no different and in July 2024, we will celebrate '30 Years of Diamonds in Canada', during which hundreds of kimberlites were discovered across Canada, leading to the opening of seven mines and Canada becoming one of the top three diamond producers in the world (by value). These are non-standard field trips which are not possible to undertake on an independent basis and there are a limited number of field trip spaces.

The Field Trips offered before, during and after the conference are:

FT01 – Northwest Territories Diamond Mines

Field Trip Leaders: Chris Hrkac, Barrett Elliott, Gary Vivian

This pre-conference field trip takes place from the evening of Tuesday 2 July 2024 to late afternoon Saturday 6 July 2024. On Tuesday 2 July participants should arrive in time to attend a 19:00-22:00 welcome and orientation with an appetiser-style dinner. The welcome will be held in the Commissioner's Room on the 4th Floor of the Nova Inn.

Duration: Multi-day.

Transport: Charter planes from Air Tindi at their Yellowknife Airport Hangar Airport to and from each of the mines (flight time: approximately 1.5 hours each way) and road transport provided by 12 IKC within Yellowknife. On Wednesday 3 July, Thursday 4 July and Friday 5 July participants will be picked up by bus at 06:40 from the Chateau Nova hotel and returned to the Chateau Nova hotel at approximately 18:30. On Saturday 6 July participants will be picked at 07:45 at the Chateau Nova Hotel and returned to the Chateau Nova Hotel at approximately 16:00.

FT03A and 3B – Slave Craton Geology

Field Trip Leader: Hendrik Falck

These pre-conference field trips take place at the Giant Mine remediation site several kilometres outside Yellowknife. Note that long sleeves, long pants, weather appropriate clothing and safety boots or **sturdy hiking boots with ankle support** are required. Participants will not be allowed on site without appropriate footwear (normal shoes, sneakers, open toe shoes will not be allowed). Hardhats, safety glasses and gloves will be provided. The Giant Mine section terrain is distinctly uneven and requires participants to climb and descend rocky slopes and walk through treed sections between outcrops. The field trip involves an approximately 1.3 kilometre walk across well-exposed outcrops and along a short road section.

These pre-conference field trips take place on the following days:

- FT03A takes place on the morning of Sunday 7 July 2024
- FT03B takes place on the afternoon of Sunday 7 July 2024

Duration: Half day.



Transport: Bus provided by 12 IKC. Participants for the FT03A morning trip will be picked up by bus at the Chateau Nova Hotel at the following times.

Trip	Date	Departure Location	Departure Time	Return Time
FT03-A	Sunday 7 July	Chateau Nova Hotel	09:15	12:30
FT03-B	Sunday 7 July	Chateau Nova Hotel	14:00	17:15

Important Note: The bus is the only way that participants will be able to gain access to the Giant Mine site, so it is important to be punctual for the pick-up times.

FT04A, 4B and 4C – Northwest Territories Kimberlite Drill Core Collection

Field Trip Leaders: Scott Cairns and Barrett Elliott

These pre-conference field trips take place at the NTGS core facility at 140 Bristol Ave (proximal to Yellowknife Airport) on the following days:

- PRE-FT04A takes place on the afternoon of Saturday 6 July 2024
- PRE-FT04B takes place on the morning of Sunday 7 July 2024
- PRE-FT04C takes place on the afternoon of Sunday 7 July 2024

Please note that long sleeves, long pants and sturdy footwear are required (open-toed footwear is not acceptable). No sampling of drill core or other samples will be permitted. However, participants may enquire with the Northwest Territories Geological Survey about the procedures and policies for obtaining samples from the collection.

Duration: Half day.

Transport: By bus provided by 12 IKC within Yellowknife. Pick-up and return times are given below. Delegates will need to make their own travel arrangements to and from Yellowknife.

Trip	Date	Departure Location	Departure Time	Return Time
FT04-A	Saturday 6 July	Chateau Nova Hotel	13:45	17:30
FT04-B	Sunday 7 July	Chateau Nova Hotel	08:45	12:30
FT04-C	Sunday 7 July	Chateau Nova Hotel	13:30	17:15

FT06 – The Field Trip to Diamonds de Canada

Field Trip Leaders: Derrick Sangris and Germán Villegas

This field trip will take place during the following days

- between 10:00 and 17:00 on Sunday 7 July 2024
- between 10:00 and 17:00 on Tuesday 9 July 2024
- between 10:00 and 17:00 on Thursday 11 July 2024

Registration is open during the conference. **Deadline to register is 12:00 noon on Wednesday 10 July.**

Duration: Approximately 1 hour at Diamonds de Canada facility. 90 minutes total time for the Field Trip.

Meeting Point: Registration Desk on Level 3 at the Chateau Nova.

Transport: The Diamonds de Canada facility is a 15-minute walk from meeting point at the Chateau Nova Hotel.

FT07A and 7B – Kennady North Project Drill Core

Field Trip Leaders: Casey Hetman, Kimberley Webb, Tom McCandless and Chris Hrkac

These pre-conference field trips take place at the Kennady North Project facility at the Great Slave Helicopter base at 106 Dickins St (proximal to the Yellowknife airport). We are pleased to announce that this trip will now include drill core from the Gahcho Kué Mine and the Renard Mine. FT07 is offered at the following times:

- PRE-FT07A takes place on the morning of Sunday 7 July 2024
- PRE-FT07B takes place on the afternoon of Sunday 7 July 2024

Note that long sleeves, long pants and sturdy footwear are required. No sampling will be permitted. Coffee, tea, bottled water and a light snack will be provided during the trip. The sampling of drill core or collection of samples will not be permitted as part of this field trip.

Duration: Half day.

Transport: By bus provided by 12 IKC within Yellowknife at the following times.

Trip	Date	Pick-Up Location	Departure Time	Return Time
FT07-A	Sunday 7 July	Chateau Nova Hotel	08:45	12:30
FT07-B	Sunday 7 July	Chateau Nova Hotel	13:30	17:15

FT04D – Northwest Territories Kimberlite Drill Core Collection

Field Trip Leaders: Scott Cairns and Barrett Elliott

This post-conference field trips take place at the NTGS core facility at 140 Bristol Ave (proximal to the Yellowknife Airport) on the following days:

- PRE-FT07B takes place on the afternoon of Saturday 13 July 2024

Registration is open during the conference. **Deadline to register is 12:00 noon on Friday 12 July.**

Please note that long sleeves, long pants and sturdy footwear are required (open-toed footwear is not acceptable). No sampling of drill core or other samples will be permitted. However, participants may enquire with the Northwest Territories Geological Survey about the procedures and policies for obtaining samples from the collection.

Duration: Half Day.

Transport: By bus provided by 12 IKC within Yellowknife at the time below.

Trip	Date	Pick-Up Location	Departure Time	Return Time
FT04-D	Saturday 13 July	Chateau Nova Hotel	12:45	16:30

FT05B – The Advances in Drift Prospecting for Kimberlite

Short Course Leader: Dave Sacco

This post-conference short course field trip will take place on the afternoon of Saturday 13 July 2024 from 13:00 to 17:00. The short course will be held at the Northwest Territories Geological Survey boardroom, located at 4601 52nd Ave (refer to <https://www.nwtgeoscience.ca/our-staff> for location details). Coffee, tea and light snacks will be provided.

Registration is open during the conference. **Deadline to register is 12:00 noon on Friday 12 July.**

Duration: Half Day.

Transport: Participants are to make their own way to the NTGS office, which is a short walk from the Chateau Nova, Explorer and Nova Inn hotels.

TECHNICAL PROGRAMME

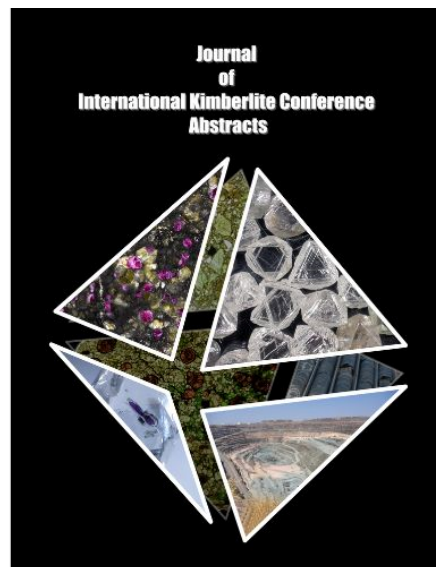
Technical Programme Committee Chairs: Graham Pearson and Thomas Stachel.

Scientific Theme Convenors:

Sonja Aulbach (Goethe University, Frankfurt), **Barrett Elliott** (Northwest Territories Geological Survey), **Yana Fedortchouk** (Dalhousie University), **Andrea Giuliani**, ETH Zürich), **Geoffrey Howarth** (University of Cape Town), **Bruce Kjarsgaard** (Geological Survey of Canada), **Maya Kopylova** (University of British Columbia) **Graham Pearson** (University of Alberta), **Pierre-Simon Ross** (L'Institut National de la Recherche Scientifique, Quebec), **Kelly Russell** (University of British Columbia), **Andrew Schaeffer** (Geological Survey of Canada), **Barbara Scott Smith** (Scott-Smith Petrology Inc.), **Karen Smit** (University of the Witwatersrand), **Thomas Stachel** (University of Alberta), **Sasha Wilson** (University of Alberta).

12 IKC Long Abstracts are available during the conference by clicking the title of each presentation in the Technical Programme posted on the 12 IKC website <https://12ikc.ca/oral-technical-programme/>.

The long abstracts are also published and available in the online Journal of International Kimberlite Conference Abstracts (JIKCA) at <https://ikcabstracts.com/index.php/ikc>.



ORAL PROGRAMME

The Lecture Hall will be the Caribou Room on Level 3 of the Chateau Nova.

The Lecture Hall is sponsored by SRC and the Audio Visual is sponsored by Lucara Diamond.



The oral programme is included on pages 41 – 51 and is also available on the website <https://12ikc.ca/oral-technical-programme/>. There will be single oral sessions on each of the five days of the conference starting at 08:30 (Monday to Friday). Each presentation will be allotted 15 minutes followed by 5 minutes for discussion and changeover. The programme will include following keynotes:

Special Opening Keynote 01 – 30 Years of Diamonds in Canada:

The Ekati and Diavik Discoveries – Canada's Entry to Global Diamond Production - *Jon A Carlson*

Keynote 02:

Advancements in Kimberlite Geology After 30 Years of Kimberlite Exploration, Evaluation and Mining in Canada - *Casey M Hetman*

Keynote 03:

Seismic Thermography of Continental Lithosphere: Structure, Evolution, and Controls on the Distribution of Kimberlites and Other Mineral Deposits - *Sergei Lebedev*

Keynote 04:

Sublithospheric diamond ages and their geodynamic implications - *Suzette Timmerman*

Keynote 05:

Estimating diamond price for mineral resources and reserves; new observations and insights - *Andy T. Davy and Malcolm L Thurston*

Keynote 06:

A universal concept of melting in mantle upwellings: all deep melts are born kimberlitic - *Max Schmidt*

Special Closing Keynote 07a:

A review of current natural diamond market supply and demand fundamentals together with an examination of recent global diamond exploration and development investment trends - *Eira Thomas, John Armstrong, and Paul Zimnisky*

Special Closing Keynote 07b:

Summary of recent diamond exploration world-wide, next steps, areas of new and renewed interest and the role of technology and ESG in exploration and mining - *John Armstrong and Eira Thomas*

Speaker Ready Room

Oral Presenters should load their presentation at least three hours prior to the start of their session, or preferably the previous day. The Speaker Ready Room is located in suite 417 on level 4 and will be available as per the following schedule:

- Sunday 7 July 11:00 – 14:00
- Monday 8 July 07:00 – 08:00
 11:00 – 14:00
- Tuesday 9 July 07:00 – 08:00
 11:00 – 14:00
- Wednesday 10 July 07:00 – 08:00
 11:00 – 14:00
- Thursday 11 July 07:00 – 08:00
 11:00 – 14:00
- Friday 12 July 07:00 – 08:00
 11:00 – 14:00

Should you need to access the Speaker Ready Room outside these times, please visit the Registration Desk and someone will assist you.

Oral Rehearsal Options

All Oral Presenters will be able to rehearse their presentation in the Caribou Room at the following times: For Sunday rehearsal please speak to the Registration Desk Staff.

- Monday 8 July 07:00 – 08:00
 17:00 – 19:00
- Tuesday 9 July 07:00 – 08:00
 17:00 – 19:00
- Wednesday 10 July 07:00 – 08:00
- Thursday 11 July 07:00 – 08:00
 17:00 – 19:00
- Friday 12 July 07:00 – 08:00



SEMINARS

The 12th International Kimberlite Conference comes at a time when high-quality petrologic, geochemical and isotopic data pertaining to kimberlites, diamonds and the Earth's upper mantle are being generated, compiled, and released into the public domain at an astonishing rate. To help make sense of this tidal wave of new data and related geoscientific models, the 12 IKC is convening two Seminars to address emergent topics related to (i) kimberlitic olivine and (ii) large Type-II diamonds.

A Seminar is an educational event in which a group of people gather together to learn more about a certain topic or subject. Seminars usually involve presentations, discussions and interactive activities that help attendees to become more knowledgeable. Each of the 12 IKC Seminars will consist of a state-of-science primary lecture, two additional supporting lectures and ample semi-moderated question-and-answer periods.

Kimberlitic Olivine: Tracking Mantle Cargo and Kimberlite Melt Evolution

Monday 8 July 2024, 13:15 to 16:15

Primary Lecture: Dr. Geoffrey Howarth, University of Cape Town, South Africa

Kimberlitic Olivine: Recent research directions, current implications, and the path forward

Supporting Lecture: Dr. Federico Casetta, University of Vienna, Austria

Olivine-hosted mineral inclusions in kimberlites: insights on the liquid line of descent and T-fO₂ path

Supporting Lecture: Dr. Adam Abersteiner, University of Adelaide, Australia

Discovery and interpretation of melt inclusions in kimberlitic olivine – Implications for primitive/parental kimberlite melt compositions

Expect to hear about:

- Why has research (and publications) on kimberlitic olivine become so popular?
- Why has a revised descriptive (zonal) terminology emerged for kimberlitic olivine, and what purpose(s) does it serve?
- Overview of current research methods, analytical techniques and pitfalls related to the rejuvenated understanding of kimberlitic olivine
- Practical tips on use of the Al-in-olivine thermometer
- Mantle sampling as exemplified by (xenocryst) olivine, garnet and clinopyroxene entrainment patterns
- Correlations between olivine core and rim compositions, with implications of mantle entrainment on kimberlite melt compositions

- Discovery and interpretation of (former) melt inclusion(s) in kimberlitic olivine, with comparison to experimental and reconstructed primitive/parental kimberlite melt compositions
- The Udachnaya-East liquid line-of-descent: key learnings and surprises
- Chromite and other inclusions in kimberlitic olivine
- The T-fO₂ path of kimberlite melts

Large Irregular Type II Diamonds: Genesis and Transport to Surface

Wednesday 10 July 2024, 14:15 to 17:15

Primary Lecture: Dr. Evan Smith, Gemological Institute of America

The deep mantle genesis of CLIPPIR and Type IIb diamonds

Supporting Lecture: Prof. Suzette Timmerman, University of Bern, Switzerland

Sublithospheric diamonds and where to find them

Supporting Lecture: Dr. Ingrid Chinn, De Beers Group, Johannesburg, South Africa

Deciphering the history of CLIPPIR diamonds from their morphology and surface features

Expect to hear about:

- How do large irregular Type II's differ from other diamonds?
- What is a CLIPPIR diamond and how does it fit into the discussion?
- Are all Type II's sublithospheric and how do the inclusions in large Type II's compare with other sublithospheric diamonds (e.g. Juina-type)?
- What new insights are sublithospheric diamonds giving us into the deep mantle?
- Are there indicator minerals for large Type II diamonds?
- How old are large Type II diamonds? What are their mantle residence times?
- What is the global distribution of large Type II diamonds?
- What do natural surface textures on Type II diamonds tell us?
- How are sublithospheric diamonds transported upward and incorporated into kimberlites?

Each Seminar will last three hours. One formal 20-minute coffee break will occur from minutes 70 to 90. The coffee station will remain open on a self-serve basis during the remainder of the Seminar.

Herman Grütter planned and coordinated the Seminars, with support from the 12 IKC Technical Program Committee Chairs Thomas Stachel and Graham Pearson.

Seminars Coffee Breaks sponsored
by SRK Consulting



POSTER PROGRAMME

The Poster Hall is in the Katimavik Room on the Ground Level of the Explorer Hotel.

The Poster Hall is sponsored by Gren and Eira Thomas. The Poster Boards are in part sponsored by the City of Yellowknife.

*Gren and Eira
Thomas*



CITY OF YELLOWKNIFE

Poster Presenters

- Poster presenters should be at their posters for the first 90 minutes during the three Poster Sessions listed below.
- All posters will be on display for the entire week of the conference with dedicated poster sessions Monday, Tuesday and Thursday at the times listed below.
- Each poster board will be numbered in the upper left corner and push pins will be provided.
- **Poster Installation:** will be available from 12:00 - 17:00 on Sunday 7 July, or from 11:00 on Monday 8 July. The Poster Hall poster will be open for viewing from Monday July 8 11:00 onwards at times listed in section below.
- **Poster Removal:** Presenters are required to take down their posters between 12:30 – 14:00 on Friday 12 July. Posters left up after the deadline at 14:00 will be discarded.

Poster Programme

The poster programme is included on pages 53 - 63 and is also available on the website. Long 12 Long Abstracts are available by clicking the title of each presentation on the website <https://12ikc.ca/oral-technical-programme/>.

All posters will be on display for the entire week of the conference (Monday to Friday noon) at the following times.

- Monday 8 July 11:00 - 19:00
- Tuesday 9 July 11:00 - 19:00
- Wednesday 10 July 11:00 - 19:00
- Thursday 11 July 11:00 - 19:00
- Friday 12 July 10:00 - 12:00

Dedicated Poster Sessions (with cash bar) and with presenters at their posters for the first 90 minutes are held at the following times:

- Monday 8 July 16:15 – 19:00
- Tuesday 9 July 16:00 – 19:00
- Thursday 11 July 16:00 – 19:00



Poster Session Bar on Monday is sponsored by
Lawson Lundell LLP



Poster Session Bar on Tuesday is sponsored by
Mountain Province Diamonds



Poster Session Bar on Thursday is sponsored by
Gren and Eira Thomas.

*Gren and Eira
Thomas*

12 IKC PROCEEDINGS VOLUME

Following the success of the 11 IKC volumes, the 12 IKC Conference Proceedings will be published again as a Special Volume of the well-known and highly respected international journal Mineralogy and Petrology, published by Springer, that has an impact factor of 2.01 (2021). All oral and poster presenters are encouraged to submit a full manuscript which will be considered for publication in the 12 IKC Conference Volumes. These papers will be subject to the standard peer-review process.

The 12 IKC Proceedings Volume is sponsored by Rio Tinto.

RioTinto

MANUSCRIPT SUBMISSION

Manuscript submission deadlines are as follows:

- Opens: Monday 10 June 2024
- Closes: Friday 15 November 2024

Important details on manuscript submission are provided on the conference homepage under “Technical Session”, <https://12ikc.ca/manuscript-submission/>.



ORAL PROGRAMME

Monday 8 July 2024

Theme 2

Emplacement and Economic Geology of Kimberlites and Related Magmas

Time	Abstract ID	Title	Presenter	Affiliation
Opening Chair: Rory Moore				
8:50	Key01	KEYNOTE: The Ekati and Diavik Discoveries – Canada’s Entry to Global Diamond Production	Jon Carlson	
9:20	Key02	KEYNOTE: Advancements in Kimberlite Geology After 30 Years of Kimberlite Exploration, Evaluation and Mining in Canada	Casey Hetman	SRK Consulting
Session Chair: Kelly Russell				
9:50	108	Metasomatic textural changes in hypabyssal transitional kimberlites: Inferences for the texture and mineralogy of KPK	Maya Kopylova	University of British Columbia
10:10	72	Canadian Kimberlite Pipe Morphology: Insights from Analogue Experiments	David Newton	Seequent
11:00	54	Understanding Kimberlite Crystallisation and Emplacement: Insights from Reaction Products on Ilmenite and Chromite	Lydia Fairhurst	Dalhousie University
11:20	63	Volcanology of selected kimberlites from the Lulo kimberlite field, Angola	Jena Moldenhauer	University of Cape Town
11:40	11	The last 10-15 years of research on non-kimberlitic diatremes, with implications for kimberlite emplacement	Pierre-Simon Ross	Institut national de la recherche scientifique

Seminar 1

Kimberlitic Olivine: Tracking Mantle Cargo and Kimberlite Melt Evolution

Seminar Chair: Herman Grütter

13:15		SEMINAR Primary Lecture: Kimberlitic Olivine: Recent research directions, current implications and the path forward (25-30 minutes) Followed by semi-moderated questions and discussion (30-40 minutes)	Geoffrey Howarth	University of Cape Town
14:45		SEMINAR Supporting Lecture: Olivine-hosted mineral inclusions in kimberlites: insights on the liquid line of descent and T-fO ₂ path (18-20 minutes) Followed by semi-moderated questions and discussion (25 minutes)	Federico Casetta	University of Vienna
15:30		SEMINAR Supporting Lecture: Discovery and interpretation of melt inclusions in kimberlitic olivine – Implications for primitive/parental kimberlite melt compositions (18-20 minutes) Followed by semi-moderated questions and discussion (25 minutes)	Adam Abersteiner	University of Adelaide

Tuesday 9 July 2024

Theme 5

Cratonic Mantle - Petrology, Geochemistry and Geophysics

Time	Abstract ID	Title	Presenter	Affiliation
Session Chair: Graham Pearson				
8:30	Key03	KEYNOTE: Seismic Thermography of Continental Lithosphere: Structure, Evolution, and Controls on the Distribution of Kimberlites and Other Mineral Deposits	Sergei Lebedev	University of Cambridge
9:00	74	Developing thermochemical models of Canada's lithosphere	Riddhi Dave	Geological Survey of Canada
9:20	76	Sodic Cr-diopside compositions record profound pyroxenite/megacrystic (re)fertilization of the central Superior craton lithosphere, Attawapiskat kimberlites, Ontario, Canada	Herman Grutter	SRK Consulting
9:40	62	Lithospheric mantle sampling of kimberlites and lamproites using Al-in-olivine thermometry	Merrily Mathume Tau	University of Cape Town
10:00	144	A new machine-learning single-crystal peridotitic garnet geobarometer & geothermometer	Gary O'Sullivan	Trinity College Dublin
Session Chair: Sonja Aulbach				
10:50	26	Lu-Hf chronometry of continuous metasomatic enrichment of the cratonic mantle	Kira Musiyachenko	University of British Columbia
11:10	88	Constraining the chemical and thermal structure of the Kaapvaal Craton subcontinental lithospheric mantle using kimberlite-indicator-mineral geochemistry	Sinelethu Hashibi	University of Cape Town
11:30	39	Sheared peridotites: linking deformation and H ₂ O metasomatism to the onset of craton destabilization	Catharina Heckel	Goethe University Frankfurt

11:50	125	Eclogitic zircon geochronology and trace element geochemistry: an investigation of mantle metasomatism from the Cretaceous to the Archean beneath the Kaapvaal craton	Molly Paul	Boise State University
12:10	132	Revisiting the origin of Cr in cratonic peridotite	Emma Tomlinson	Trinity College Dublin
Session Chair: Andrew Schaeffer				
14:00	153	Experimental investigation of silica enrichment in Archean cratonic lithosphere	Caterina Melai	Trinity College Dublin
14:20	34	Large scale rejuvenation of lithospheric mantle beneath Jwaneng, Botswana: implication for diamond growth and destruction	Gareth Davies	Vrije University Amsterdam
14:40	133	Subduction involved in generating thick Archean cratonic keels? Insights from >2.83 Ga detrital diamonds from Tree River, Slave Craton, Canada	Rory Changleng	Penn State University
15:00	177	New insights into the age, composition and thermal history of the lower crust	Roberta Rudnick	University of California
15:20	24	Ultra-refractory peridotites in the modern and ancient Earth and their implications for origins of Archean cratonic roots	James Scott	University of Cologne
15:40	173	A global look at cratons and the thermal properties that define their roots	Graham Pearson	University of Alberta

Wednesday 10 July 2024

Theme 1

Diamonds

Time	Abstract ID	Title	Presenter	Affiliation
Session Chair: Karen Smit				
8:30	Key04	KEYNOTE: Sublithospheric diamond ages and their geodynamic implications	Suzette Timmerman	University of Bern
9:00	45	Sublithospheric Diamonds and Indicator Minerals from DO-27 Kimberlite, Slave Craton, Canada– Geochemistry, Age and Origin	Qiwei Zhang	University of Alberta
9:20	64	Multistage diamond formation, mantle uplift and changing geothermal regimes recorded by inclusions in Kimberley diamonds	Paolo Nimis	Università Di Padova
9:40	57	Diamonds from Fort à la Corne – post-Archean formation in exceptionally cool and fertile lherzolitic substrates	Anetta Banas	Apex Geoscience Ltd.
Session Chair: Yana Fedortchouk				
11:00	121	How old are diamonds beneath Proterozoic cratons? Answers from the State Line Kimberlite District, western Laurentia	Melissa Bowerman	University of Alberta
11:20	137	Diamonds from Knee Lake, Manitoba: A Neoarchean aged unconventional diamond deposit on the northwestern Superior Craton	Andrea Pezzera	University of Alberta
11:40	155	Understanding diamond-forming fluids and parental lithologies using Fe, Mg, and K isotopes	Peng Ni	University of California
12:00	134	Metasomatic diamond-forming events in the Limpopo Belt deep lithosphere recorded by HDFs in Venetia diamonds	Yael Kempe	The Hebrew University of Jerusalem

12:20	48	Fluid escape from diamond caught-in-the-act: towards the composition and origin of diamond-forming fluids	Luísa De Carvalho	University of Alberta
12:40	98	Sources and ages of diamond-forming fluids in the lithospheric mantle	Yaakov Weiss	The Hebrew University of Jerusalem

Seminar 2

Large Irregular Type II Diamonds: Genesis and Transport to Surface

Seminar Chair: Herman Grütter

14:15		SEMINAR Primary Lecture: The deep mantle genesis of CLIPPIR and Type IIb diamonds (25-30 minutes) Followed by semi-moderated questions and discussion (30-40 minutes)	Evan Smith	Gemological Institute of America
15:45		SEMINAR Supporting Lecture: Sublithospheric diamonds and where to find them (18-20 minutes) Followed by semi-moderated questions and discussion (25 minutes)	Suzette Timmerman	University of Bern
16:30		SEMINAR Supporting Lecture: Deciphering the history of CLIPPIR diamonds from their morphology and surface features (18-20 minutes) Followed by semi-moderated questions and discussion (25 minutes)	Ingrid Chinn	De Beers Group

Thursday 11 July 2024

Theme 1
Diamonds

Time	Abstract ID	Title	Presenter	Affiliation
Session Chair: Luisa de Carvalho				
8:30	25	A Russian doll diamond in the making	Jeffrey Harris	University of Glasgow
8:50	97	Oxidized and reduced Ni-rich phases in Voorspoed diamonds	Oded Navon	The Hebrew University of Jerusalem
9:10	118	Mineral inclusions in E-type diamonds from the Siberian craton: witnesses of Archaean mantle redox heterogeneities and eclogite buffering capacity	Giulia Marras	Sapienza University of Rome
9:30	67	Diversity of crystallization conditions of hypabyssal and coherent kimberlites recorded in diamond surface textures	Yana Fedortchouk	Dalhousie University

Theme 4
Diamond Deposits - Exploration and Mining

Session Chair: Maya Kopylova

9:50	Key05	KEYNOTE: Estimating diamond price for mineral resources and reserves; new observations and insights	Andy Davy Malcolm Thurston	Independent Consultants
11:00	35	Diamond deposit valuations using size frequency distributions and price modelling	John Chapman	Gemetrix Pty

11:20	176	A new approach to sampling and evaluating large, low-grade kimberlites at Fort à la Corne, Saskatchewan, Canada	Gus Fomradas	Rio Tinto Exploration Canada Inc.
11:40	73	Diamond preservation in the lithospheric mantle recorded by olivine in kimberlites	Andrea Giuliani	ETH Zurich
12:00	46	A Classification System Precisely Distinguishing Diamond Mineral Inclusion Compositions from Indicator Minerals from Barren Sources	Chad Ulansky	Metalex Ventures Ltd
12:20	19	Diamonds delivered to the West Coast of southern Africa from erosion of Kaapvaal based kimberlites and lamproites	Mike de Wit	University of Stellenbosch
Session Chair: Barrett Elliott				
14:00	165	Evolution of Kimberlite Exploration - Advances in Drift Prospecting in Canada's North (Part 1): Fundamentals and Foundations	Dave Sacco	Palmer
14:20	169	Evolution of Kimberlite Exploration – Kimberlite Indicator Mineral Dispersion on the Kennady North Project, Southern Slave Craton, NWT	Tom McCandless	Mountain Province Diamonds
14:40	157	Evolution of Kimberlite Exploration - Reasons for Renewed Exploration and One "Classic" Example for a Second Look (Part 2)	Eileen Lyon	Aurora Geosciences Ltd.
15:00	116	Exploring for concealed kimberlites: increasing discovery success with soil microbial community fingerprints	Bianca Iulianella Phillips	University of British Columbia
15:20	105	Diavik Diamond Mine Update	Matthew Breen	Diavik Diamond Mine
15:40	37	Impact of High-Power Microwave Treatment on Comminution and Downstream Processing of Kimberlite Ores	Ravash Borhan Mehr	Queen's University

Friday 12 July 2024

Theme 3

The Origin and Evolution of Kimberlites and Related Magmas

Time	Abstract ID	Title	Presenter	Affiliation
Session Chair: Geoff Howarth				
8:30	Key06	KEYNOTE: A universal concept of melting in mantle upwellings: all deep melts are born kimberlitic	Max Schmidt	Department of Earth Sciences, ETH
9:00	170	A new global kimberlite geochemistry dataset: the benefits of open and complete data sharing	Hayden Dalton	The University of Melbourne
9:20	59	Predicting geochemical and isotopic compositions as well as lithosphere-asthenosphere boundary depth and diamond grade in kimberlites and lamproite using Artificial Intelligence	Luc Doucet	Curtin University
9:40	50	Zn and Fe isotopes indicate that kimberlites and silica-undersaturated magmas derive from similar asthenospheric mantle sources	Ronghua Cai	China University of Geosciences
10:00	180	A fresh look at the mantle sources of low-degree mantle-derived melts using K and Ba isotopes	Oded Elazar	Carnegie Institution for Science
Session Chair: Bruce Kjarsgaard				
10:50	122	Revisiting Sr-Nd-Hf isotope variations in global cratonic lamproites	Soumendu Sarkar	The University of Melbourne
11:10	27	The origin of Karoo-age diamondiferous lamproites in Zambia	Ntando Ngwenya	University of Johannesburg

11:30	106	Magmatic expressions of the Mesoproterozoic Midcontinent Rift and consequences for sampling diamonds – ultramafic lamprophyres from the Superior craton	Fiona Clark	University of Alberta
11:50	80	The origin of Camp Alpha megacrysts and their relationship to kimberlite magmatism - Liberia, West African Craton	Ellwin Taleni Shiimi	University of Cape Town
12:10	145	Mantle source characteristics of diamondiferous areas in Brazil revealed from Hf and O isotopes of zircon megacrysts	Izaac Cabral-Neto	Geological Survey of Brazil
Session Chair: Andrea Giuliani				
14:00	21	Updated geochronology of the central Slave craton – duration, pulses and time-integrated source variability	Chiranjeeb Sarkar	University of Alberta
14:20	178	Mid- and Late Cretaceous N American Kimberlite Magmatism: A comprehensive Tectonic model	Stephen Johnston	University of Alberta
14:40	120	Kimberlite magmatism fed by broad upwelling above mobile basal mantle structures	Nicolas Flament	University of Wollongong
Session Chair: George Read				
15:00	Key07a	KEYNOTE: A review of current natural diamond market supply and demand fundamentals together with an examination of recent global diamond exploration and development investment trends	Eira Thomas	Independent Consultant
15:20	Key07b	KEYNOTE: Summary of recent diamond exploration worldwide, next steps, areas of new and renewed interest and the role of technology and ESG in exploration and mining	John Armstrong	Independent Consultant



POSTER PROGRAMME

Theme 1

Diamonds

Poster Number	Abstract ID	Title	Presenter	Affiliation
P1-01	9	When diamonds are not pure diamond: amorphous carbon (a-C) grain boundary complexions in natural diamond aggregates	Samantha Perritt	De Beers Group
P1-02	10	TiO ₂ exsolution as a cause of ferropericlasite inclusion iridescence in diamond	Samantha Perritt	De Beers Group
P1-03	47	Machine learning classification on the chemical compositions of lithospheric diamonds and their inclusions	Zhou Zhang	Zhejiang University
P1-04	117	Diamonds in the oceanic mantle: a new occurrence on Earth	Jingsui Yang	Nanjing University
P1-05	150	A first look at diamonds and their inclusions from the Sequoia Kimberlite Complex, Northwest Territories, Canada	Thomas Stachel	University of Alberta
P1-06	71	Mesoproterozoic diamond formation in the Sask craton mantle root: A far-field link to the Mackenzie large igneous event?	Sarah EM Milne	University of Alberta
P1-07	78	The Occurrence of Diamond in the HPHT Metal-Chromite-Carbon System: Implications for Diamond in Ophiolites	Zhiyun Lu	Zhejiang University
P1-08	86	Microdiamonds from Tonian plume-related LIP, North China Craton (NCC)	Yun Wang	Nanjing University
P1-09	87	Laser ablation of 'diamonds-in-water' – a new technique for digging deeper	Yaakov Weiss	The Hebrew University of Jerusalem
P1-10	90	Diamonds in the Kimberley area formed from mantle volatiles	Pierre Cartigny	IPG-Paris

P1-11	92	Mineralogical Features and Comparison of Diamonds from Three Kimberlite Belts in Mengyin, China	Fei Liu	Institute of Geology, Chinese Academy of Geological Sciences
P1-12	94	A snapshot of mantle metasomatism recorded by clinopyroxene inclusions in diamonds	Kate Kiseeva	American Museum of Natural History
P1-13	99	CO ₂ nano-inclusions in diamonds	Oded Navon	The Hebrew University of Jerusalem
P1-14	115	Dynamical properties of defects in diamond	Razvan Caracas	Institut de Physique du Globe de Paris
P1-15	53	Lessons from Letseng – Evidence in support of the Flamboyant Megacryst	Norman Lock	
P1-16	130	Trace element compositions of diamond-forming fluids in Voorspoed diamonds	Yael Kempe	The Hebrew University of Jerusalem
P1-17	139	Characterisation of sublithospheric and lithospheric diamond populations from the Candle Lake C29/30 kimberlite, Sask Craton, Canada	Andrea Pezzera	University of Alberta
p1-18	141	In-situ U-Pb dating of garnet in diamonds from Venetia, South Africa	Brendan Hoare	Trinity College Dublin
P1-19	56	Carbon with diamond structure in phlogopite in peridotite, Barr Slope Mine, Dixonville, Pennsylvania	Chien-Lu Chan	Henry O. A. Meyer Memorial Research
P1-20	151	Macle Diamonds: Primary Fluid Inclusion Entrapment Along the Twinning Plane	William Henry Towbin	Gemological Institute of America
P1-21	158	Tales from Diamond Surface Features	David Phillips	University of Melbourne
P1-22	159	Rare natural colored diamonds: diamonds colored by the 480 nm absorption band	Mei Yan Lai	Gemological Institute of America

P1-23	179	Temporal changes in diamond formation by subduction through Earth history: thermal modeling, seismology, & petrology evidence	Steven Shirey	Carnegie Institution for Science
P1-24	188	What Inclusions in Diamond Tell Us About the Lithospheric Mantle Beneath Snap Lake Kimberlite Dyke (Northwest Territories, Canada)	Kelsey Graversen	De Beers Group

Theme 2

Emplacement and Economic Geology of Kimberlites and Related Magmas

Poster Number	Abstract ID	Title	Presenter	Affiliation
P2-01	55	Structural analysis of active quarries in the Quaternary Western Eifel volcanic field and their relevance for the formation of diatremes	Georg Buechel	University Jena, Institute of Earth Sciences
	146	Floating reefs and their relevance for the emplacement of maar-diatreme volcanoes	Volker Lorenz	University of Wuerzburg
P2-03	192	Evolution of the geological model of Renard 3 Kimberley-type pyroclastic kimberlite over 1,000 metres depth, Quebec, Canada	Colleen Laroulandie	Stornoway Diamonds

Theme 3

The Origin and Evolution of Kimberlites and Related Magmas

Poster Number	Abstract ID	Title	Presenter	Affiliation
P3-01	184	Secular variation in kimberlite formation: the variable connection to LLSVPs	Claudia Adam	Kansas State University
P3-02	22	Petrology, geochemistry, and geochronology of the Pikoo Kimberlites, Saskatchewan	Chiranjeeb Sarkar	University of Alberta
P3-03	16	Nature and origin of lamproite hypabyssal intrusives from the Jharia basin in eastern India	Parminder Kaur	Panjab University Chandigarh

P3-04	15	Geochemistry of potassic sills and dykes from Jharkhand: Implications for the Cretaceous lamproite magmatism of eastern India in proximity to the Kerguelen mantle plume	Parminder Kaur	Panjab University Chandigarh
P3-05	32	Kimberlites and basaltic melts as key tracers of Earth's least processed mantle reservoirs	Jingao Liu	China University of Geosciences
P3-06	38	Tracing the relative roles of lithospheric and sublithospheric mantle in kimberlite source regions using highly siderophile elements and Re-Os isotope systematics	Yong Xu	University of Alberta
P3-07	41	Insights in Na-contents of kimberlite melts from experimentally determined partition coefficients between olivine and silicate-carbonate melt	Rebecca Fabiana Zech	ETH Zürich
P3-08	60	Emplacement of the Argyle diamond deposit into an ancient rift zone triggered by supercontinent breakup	Luc Doucet	Curtin University
P3-09	70	Petrology and Geochronology of kimberlites from the Victoria Island field, NU/NT, Canada	Alex Müller	University of Alberta
P3-10	83	Hollandite group minerals in Lamproites from the Jharia Coalfield, Damodar Valley, India	Gurmeet Kaur	Panjab University, Chandigarh
P3-11	89	Geochemical Characteristics and U-Pb chronological of Apatite in Diamondiferous Kimberlite Pipes, the North China Craton (NCC)	Chuqi Cao	Chinese Academy of Geological Sciences
P3-12	93	Petrology, Geochemistry, and Geochronology of the Dharma Kimberlites, Northwest Territories, Canada	Nikita Kepezhinskis	
P3-13	138	Apatite U-Pb dating of kimberlite: a feasibility study from South China	Jiawei Zhang	Guizhou Geological Survey
P3-14	107	The effect of crustal xenolith-kimberlite reaction on host kimberlite classification: The Pionerskaya case	Amy Mailey	University of British Columbia
P3-15	110	Dating Perovskites From Kimberlites Of The Alto Paranaíba Igneous Province, Brazil: Challenges, Strategies And Geodynamic Implications	Rogério G. Azzone	Institute of Geosciences (IGc), University of São Paulo

P3-16	126	Geochemistry, petrography, and zircon geochronology of MARID xenoliths from the Kaapvaal craton, southern Africa	Molly Paul	Boise State University
P3-17	140	New Ar-Ar age and C-O isotope geochemistry of the Piedade (Aps) carbonatite complex of the Ponta Grossa Arch region, Southern Brazil: petrological implications	Excelso Ruberti	University of São Paulo, Brazil
P3-18	96	(U-Th)/He geochronology of kimberlite zircon megacrysts: a new chronometer for dating emplacement	Spencer Zeigler	University of Colorado Boulder
P3-19	142	An experimental study on the kimberlitic magma evolution during ascent before emplacement	Zairong Liu	Institute of Deep-sea Science and Engineering, Cas
P3-20	154	The effect of volatiles on properties of kimberlite melts	Ana Anzulovic	University of Oslo
P3-21	163	Post-collisional lamprophyres – exploration tools for rare metal deposits	Thomas Seifert	TU Bergakademie Freiberg
P3-22	171	New Geochemical Insights into the Petrogenesis of South Australian Kimberlites	Hayden Dalton	University of Melbourne
P3-23	174	The origin of kimberlitic zircon and the search for a “fingerprint” for superdeep diamonds: enhanced classification of source rock using zircon trace element compositions and machine learning	Graham Pearson	University of Alberta
P3-24	182	A Geochronological Perspective on the Geodynamic Models of Kimberlite and Lamproite Magmatism in Kansas	Pamela Kempton	Kansas State University
P3-25	8	Geochronology of the Qeqertaa Diamondiferous Ultramafic Lamprophyre, West Greenland	Mark Thomas Hutchison	Government of Greenland

Theme 4

Diamond Deposits - Exploration and Mining

Poster Number	Abstract ID	Title	Presenter	Affiliation
P4-01	7	Diamond Exploration and Regional Prospectivity of Greenland	Mark Thomas Hutchison	Government of Greenland
P4-02	23	Sedimentology and source provenance analysis of diamondiferous gravels of the Middle Orange River, Northern Cape Province, South Africa	Cameron McLaren	Nelson Mandela University
P4-03	14	Dachine Revisited	Jacques Letendre	Exploration Renouveau Inc.
P4-04	18	Kimberlites and lamproites in Zambia	Alec Hawkes	
P4-05	20	Reflectance spectroscopy for investigating diamond inclusions and kimberlite indicator minerals	Edward Cloutis	University of Winnipeg
P4-06	31	Discovery of Tracing Diamond in South Linyi	Yi Ding	Hebei GEO University
P4-07	30	Several Questions in Searching for Diamondiferous Kimberlite in China	Yi Ding	Hebei GEO University
P4-08	186	Geology Development and Evaluation of Meya Kimberlite Dyke System, Kono District, Sierra Leone	Casey Hetman	SRK Consulting
P4-09	52	Evolution of Kimberlite Exploration - Systematic exploration using a ground geophysical toolbox for kimberlites, Slave Craton, NWT, Canada (Part 1)	Darrell Epp	Aurora Geosciences Ltd.
P4-10	69	Leveraging AI to eliminate bias in kimberlite core logging	Alexandrina Fulop	De Beers Canada - Exploration

P4-11	85	New technologies: a paradigm shift in kimberlite core logging	Alexandrina Fulop	De Beers Canada - Exploration
P4-12	77	A21 - Diavik's Newest Underground Mine	Philip Lewis	Rio Tinto Exploration
P4-13	82	Geology of the Lulo kimberlite cluster of Lunda Norte Province of Angola	Richard Price	Lucapa Diamond Company
P4-14	84	Enhancing Large Diamond Recovery: A Comprehensive Overview of X-ray Transmission (XRT) Technology	Corné de Jager	TOMRA Sorting Pty Ltd
P4-15	75	Occurrence and recovery of Rare Earth Elements from kimberlite tailings in diamond mines	Mohammed Rifkhan Mohammed Nayeem	Dalhousie University
P4-16	101	Diamond Mining in Canada – An Evolving Mine Engineering Knowledge Base	Jaroslav Jakubec	SRK Consulting
P4-17	13	Jwaneng — The Untold Story of The Discovery of the World's Richest Diamond Mine	Norman Lock	
P4-18	114	Vertical Cutter Mining – A sustainable technology for mining of small vertical kimberlite bodies and veins	Ulrich Schoepf	Bauer Maschinen GmbH
P4-19	123	Major Element Indicator Mineral Chemistry of the Lulo Kimberlite Province, Lunda Norte, Angola	Paul Allan	Lucapa Diamond Company
P4-20	136	The River Ranch Kimberlite, Zimbabwe	Leon Daniels	Pangolin Diamonds
P4-21	147	Diamond sources of the Juína region, Amazonian craton: textural and mineral chemical characteristics of Kimberley-type pyroclastic kimberlites	Izaac Cabral-Neto	Geological Survey of Brazil
P4-22	161	Recovering Population Estimates through Expectation Maximization Techniques	Yuri Kinakin	Rio Tinto Exploration

P4-23	166	Evolution of Kimberlite Exploration – Advances in Drift Prospecting in Canada’s North (Part 2): Case Studies and Examples	Patrick DesRosiers	Palmer/SLR
P4-24	172	Comparison of Full-Tensor Magnetic Gradiometry with Conventional Magnetic Data: Implications for Kimberlite Exploration	Janet Morrissey	Rio Tinto Exploration
P4-25	175	Evolution of Kimberlite Exploration – A New Look at Kimberlite Indicator Morphology from the Southern Slave Craton, NWT	Tom McCandless	Mountain Province Diamonds
P4-26	185	Updated Northwest Territories Kimberlite Compilation	Barrett Elliott	Northwest Territories Geological Survey
P4-27	191	Karowe Diamond Mine: Geology and Diamonds of the South Lobe and Implications for Underground Mining	Kimberley Webb	SRK Consulting (Canada) Inc.
P4-28	103	Find the hidden diamond ore body Nearby No.50 kimberlite pipe in Wafangdian area, Liaoning, China	Fu Haitao	Liaoning Geological Exploration and Mining Group

Theme 5

Cratonic Mantle - Petrology, Geochemistry and Geophysics

Poster Number	Abstract ID	Title	Presenter	Affiliation
P5-01	42	Constraints on the distribution, composition, and lithology of eclogite-pyroxenite xenoliths from the central Slave Craton mantle root	Thomas Stachel	University of Alberta
P5-02	28	Probing the northern Kaapvaal craton root with mantle-derived xenocrysts from the Marsfontein orangeite diatreme, South Africa	Ntando Ngwenya	University of Johannesburg
P5-03	33	V/Sc in garnet xenocrysts: new oxybarometry frontiers for the SCLM	Lynthener Bianca Takenaka de Oliveira	SRK Consulting
P5-04	40	A sheared ilmenite-dunite xenolith from Lesotho: witness of deformation, metasomatism and perturbation of the lithosphere	Catharina Heckel	Goethe University Frankfurt

P5-05	156	Classifying crust- and mantle-derived garnet from a structural-chemical perspective	Song Gao	Western University
P5-06	44	Geodynamic Modelling of Cratonic Basins – Hosts for Diamonds and Gold	Kristina Kublik	University of Alberta
P5-07	51	Formation and evolution of the subcontinental lithospheric mantle beneath accretionary orogenic belts: implications for the birth of future cratons	Yuchen Liu	China University of Geosciences
P5-08	58	Cr-rich Megacrysts in Kimberlite	Dan Schulze	University of Toronto
P5-09	61	Mapping Global Lithospheric Mantle Pressure-Temperature Conditions by Machine Learning-Based Thermobarometry	Chenyang Ye	Zhejiang University
P5-10	68	Metasomatism of the deep root of the Slave craton by melts from subducted oceanic crust	Sarah Brooker	University of Texas
P5-11	91	Thermal and chemical structure of on- and off-craton lithosphere in central Africa from kimberlite indicator minerals	Philip Janney	University of Cape Town
P5-12	17	Water in cratonic eclogites and pyroxenites from the Sask and Superior Cratons: impacts of tectonothermal events on mantle lithosphere evolution and dynamics	Rondi Davies	Queensborough Community College, CUNY
P5-13	104	Southeast Slave Craton Lithosphere, Revisited	Bruce Kjarsgaard	Geological Survey of Canada, Natural Resources Canada
P5-14	111	Mantle compositional architecture and diamond potential for the Alto Paranaíba Igneous Province, Brazil: compositional signatures from garnet xenocrysts in kimberlites	Julia Cristina Bandeira Lino De Souza	University of São Paulo
P5-15	112	Kimberlites from Chicoria Creek, Juina, Brazil: Two broadly differing diamond and indicator mineral suites pointing to subduction and plate melting	Harrison Cookenboo	Consulting Geologist
P5-16	113	Effects of melt depletion and metasomatism on U-Th-Pb behavior in cratonic mantle	Diego Toro Vivanco	University of Bern

P5-17	119	Ferric iron measurements of coexisting garnet and clinopyroxene in grosspyroxite xenoliths from Zagadochnaya kimberlite pipe (Yakutia, Siberian craton)	Giulia Marras	Sapienza University of Rome
P5-18	124	Arc Mantle Redox since Archean: Insights from Machine Learning, Statistics and Thermodynamic Modeling	Chun-Tao Liu	Zhejiang University
P5-19	129	Origins and timing of amphibole and phlogopite formation in kimberlite-borne eclogite and pyroxenite xenoliths	Sonja Aulbach	Goethe University
P5-20	128	Imaging the cratonic mantle lithosphere-kimberlite system beneath Kimberley (Kaapvaal craton) with in-situ U-Pb and geochemical analyses	Sonja Aulbach	Goethe University
P5-21	95	Kimberlite apatite (U-Th)/He thermochronology of the Canadian Arctic: what fraction of kimberlites were eroded?	Spencer Zeigler	University of Colorado
P5-22	131	Quantifying the thickness of the Archean lithosphere beneath the western Kaapvaal craton at the time of Zero kimberlite emplacement (1.6 Ga)	Zuko Qashani	Trinity College Dublin
P5-23	135	Age and origin of the lithospheric mantle below the Ancient Gneiss Complex, Eswatini	Kananelo Letete	University of The Witwatersrand
P5-24	143	Transitional pyroxenitic-lherzolitic xenoliths from Roberts Victor, Kaapvaal craton	Karen Smit	University of the Witwatersrand
P5-25	148	Determining the origin of fluids in the cratonic lithosphere	Emma Tomlinson	Trinity College Dublin
P5-26	149	The Origin of Eclogitic Corundum and Garnet Xenocrysts from the Kareevlei Kaapvaal Lamproite (Group II Kimberlite)	Anele Joni	University of Cape Town
P5-27	152	Quantifying the melting conditions of Archean cratonic peridotites	Jarious Kaekane	Trinity College Dublin
P5-28	127	Probing the Diamond potential of the North American Lithosphere using seismic tomography	Andrew Schaeffer	Geological Survey of Canada



*Dr. Chris Jennings
and
Jeanne Jennings*



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CONFERENCE PROGRAMME OVERVIEW

Monday	Tuesday	Wednesday	Thursday	Friday
8:30 Conference Opening	8:30 Keynote 3: Sergei Lebedev	8:30 Keynote 4: Suzette Timmerman	8:30 Jeffrey Harris	8:30 Keynote 6: Max Schmidt
8:50 Keynote 1: Jon Carlson	9:00 Riddhi Dave	9:00 Qiwei Zhang	8:50 Oded Navon	9:00 Hayden Dalton
9:20 Keynote 2: Casey Hetman	9:20 Herman Grütter	9:20 Paolo Nimis	9:10 Giulia Marras	9:20 Luc Doucet
9:50 Maya Kopylova	9:40 Merrily Mathume Tau	9:40 Anetta Banas	9:30 Yana Fedortchouk	9:40 Ronghua Cai
10:10 David Newton	10:00 Gary O'Sullivan	10:00 Group photo	9:50 Keynote 5a: Malcolm Thurston	10:00 Oded Elazar
10:30 Coffee (30 min)	10:20 Coffee (30 min)	10:30 Coffee (30 min)	10:10 Keynote 5b: Andy Davy	10:20 Coffee (30 min)
11:00 Lydia Fairhurst	10:50 Kira Musiyachenko	11:00 Melissa Bowerman	10:30 Coffee (30 min)	10:50 Soumendu Sarkar
11:20 Jena Moldenhauer	11:10 Sinelethu Hashibi	11:20 Andrea Pezzera	11:00 John Chapman	11:10 Ntando Ngwenya
11:40 Pierre-Simon Ross	11:30 Catharina Heckel	11:40 Peng Ni	11:20 Gus Fomradas	11:30 Fiona Clark
12:00 Lunch (75 min)	11:50 Molly Paul	12:00 Yael Kempe	11:40 Andrea Giuliani	11:50 Elwin Taleni Shiini
Seminar 1	12:10 Emma Tomlinson	12:20 Luisa De Carvalho	12:00 Chad Ulansky	12:10 Izaac Cabral-Neto
13:15 Geoffrey Howarth	12:30 Lunch (90 min)	12:40 Yaakov Weiss	12:20 Mike de Wit	12:30 Lunch (90 min)
14:45 Federico Casetta	14:00 Caterina Melai	13:00 Lunch (75 min)	12:40 Lunch (80 min)	14:00 Chitranjeeb Sarkar
Seminar Coffee Break (20 min)	14:20 Gareth Davies	Seminar 2	14:00 Dave Sacco	14:20 Stephen Johnston
15:30 Adam Abersteiner	14:40 Rory Changleng	14:15 Evan Smith	14:20 Tom McCandless	14:40 Nicolas Flament
	15:00 Roberta Rudnick	15:45 Suzette Timmerman	14:40 Eileen Lyon	15:00 Keynote 7a: Elra Thomas
	15:20 James Scott	Seminar Coffee Break (20 min)	15:00 Bianca Julianella Phillips	15:20 Keynote 7b: John Armstrong
	15:40 Graham Pearson	16:30 Ingrid Chinn	15:20 Matthew Breen	15:55 Closing Remarks
			15:40 Ravash Borhan Mehr	
16:15 Poster Session with Coffee & Cash Bar	16:00 Poster Session with Coffee & Cash Bar	18:00 Buses depart hotels for Beer Barge	16:00 Poster Session with Coffee & Cash Bar	18:00 Buses depart hotels for the Farewell Dinner
		Beer Barge		Farewell Dinner