



# Rockstone Research

August 8, 2017

## Report #5

Diamonds in Finland and  
Canada, Niobium in Canada



Patrik Schmidt from Weilheim an der Teck went to the Eberhard-Karls University in Tübingen, Germany, where he studied geology. In 2008, he started to work for Dahrouge Geological Consulting Ltd. While currently doing his PhD at the University of Windsor, researching about the high-field strength element (HFSE) behaviour during magmatic and hydrothermal processes in the Eldor Carbonatite, he recently discovered a carbonatite outcrop in a creek bed on the CAP Property, which subsequently was drill tested.

## German Geologist Discovers a Rare Carbonatite Complex in British Columbia

**Today, Arctic Star Exploration Corp. made a striking [announcement](#) of having discovered a carbonatite complex at its 100% owned CAP Property in British Columbia, Canada.**

The company started a maiden drill program in mid-July and one of the holes intersected carbonatite. Assays are pending and expected shortly, potentially confirming the presence of niobium within the carbonatite. Arctic's consultant, Jody Dahrouge (P.Geo.) of Dahrouge Geological Consulting Ltd., commented in today's news:

*"We are extremely grateful to be part of the group which conceptualized and discovered this hitherto unknown carbonatite-syenite complex. Carbonatite is an extremely rare rock type with only around 550 complexes identified worldwide.*

*In addition to their rarity, they are also well-known for being the source of production for a plethora of commodities, including being the dominate source for niobium and rare earth elements (REEs). The potential rewards associated with a new discovery such as at CAP cannot be overstated."*

### Company Details

Arctic Star Exploration Corp.

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Shares Issued & Outstanding: 55,092,522



▲ Chart Canada (TSX.V)

Canadian Symbol (TSX.V): ADD

Current Price: \$0.195 CAD (08/04/2017)

Market Capitalization: \$11 Million CAD



▲ Chart Germany (Frankfurt)

German Symbol / WKN: 82A1 / A2DFY5

Current Price: €0.117 EUR (08/08/2017)

Market Capitalization: €7 Million EUR





**A**rctic Star Exploration Corp. staked the CAP Property in 2010 based on a magnetic anomaly from government surveys. The company thought it could be a carbonatite given its size, shape and location within a quite magnetic background of mostly sedimentary rocks. Subsequent work found thin syenite dykes, which they believed to be related to a carbonatite complex.

Back then, these dykes were sampled and contained highly anomalous geochemistry (indicative of a large and higher grade carbonatite deposit below surface), including 0.48-0.98% Nb<sub>2</sub>O<sub>5</sub>, 1.13-3.19% zirconium, >0.1% lanthanum, >0.1% cerium and >0.05% neodymium. On [July 18, 2017](#), Arctic started a maiden drill program.

I just called management for a short interview and was informed that the interpretation of a carbonatite complex on the property **now proved true** when a German geologist, Patrik Schmidt (see picture to the right) who works for Dahrouge, started prospecting around the northernmost drill pad and found a carbonatite outcropping in a creek bed.

They then reorientated drill hole #4 to hit the carbonatite and the pictures of the core speak for themselves. A 77 m long intersection showed carbonatite with a diverse mineral assemblage.

Assays are pending and may soon make the discovery of a niobium enriched carbonatite deposit official.

Recent work on the property focused on a 3,000 x 1,000 m area, where previous geophysics and rock-soil samples outlined a distinct anomaly.

Most recently, 4 holes were completed along with prospecting, mapping and sampling. Highlights include:

- **Carbonatite and/or alkaline rock types intersected in 2 of 4 drill holes,**
  - **an approximate 90 m mapped strike-length of carbonatite in outcrop with apparent estimated thickness of >50 m; and**
  - **the discovery of numerous additional outcrops of carbonatite, and related rocks, across an area measuring approximately 800 x 200 m.**
- The most significant drill hole to date (CAP17-004 with an orientation of 163°/-55°) intersected:
- **53-75 m: calcite carbonatite, fenite, syenite, country rock**
  - **75-152 m: carbonatite (variable composition; see below picture)**
  - **152-219 m: syenite and fenite; EOH ("End of Hole").**

The true thickness of these intersections is uncertain at this time. The company cautions, that although a diverse mineral assemblage is present throughout the core, it is too early to determine if any metals or minerals may be present in significant concentrations. Samples are currently being collected and are expected to arrive at the lab shortly.

*Geologist Patrik Schmidt at work in the field (source: Arctic Star Exploration):*







Core pictures of recently completed drill hole CAP17-004 showing a carbonatite with diverse mineral assemblage. Soon, assays will make clear determination of the encountered mineralization. (Source: Arctic Star Exploration)







**Above:** Core picture of recently completed drill hole CAP17-004 potentially showing Lower Syenite. (Source: Arctic Star Exploration)



**Left:** Outcropping carbonatite in a creek bed recently discovered by Patrik Schmidt during prospecting. (Source: Arctic Star Exploration)

### About Carbonatite Deposits

Carbonatite is a type of intrusive or extrusive igneous rock defined by mineralogic composition consisting of greater than 50% carbonate minerals. Carbonatites are rare, peculiar igneous rocks formed by unusual processes and from unusual source rocks. ([Source](#))

Mineralized carbonatite systems have been mined for and/or are potential sources for commodities such as REE's, niobium, tantalum, copper, nickel, iron, titanium, zirconium, platinum group elements (PGEs), gold, fluor spar, lime, sodalite, and vermiculite. Strong demand growth, stemming in part from a number of green energy solutions, has placed upward price pressure on a number of those commodities associated with carbonatites. Some of the more notable active and past producing carbonatite deposits known worldwide include Palabora (Cu, Ni, Au, PGE's, other), South Africa; Bayon Obo (REE's, Fe, Nb, fluor spar), China; Araxa (Nb), Brazil; Cargill (Phosphate), Canada; Niobec (Nb), Canada; Mountain Pass (REE's), United States; and Mount Weld (REE's), Australia.

**For more information on the CAP Property, the Rocky Mountain Rare Metal Belt in British Columbia, globally significant niobium deposits, the booming niobium market with rapidly growing demand and recent niobium transactions, see [Rockstone Report #3](#).**





Recent drilling confirmed a carbonatite complex on the CAP Property. (Source: Arctic Star Exploration)

## Economic Importance of Carbonatite Deposits

Carbonatites may contain economic or anomalous concentrations of rare earth elements, phosphorus, niobium-tantalum, uranium, thorium, copper, iron, titanium, vanadium, barium, fluorine, zirconium, and other rare or incompatible elements. Apatite, barite and vermiculite are among the industrially important minerals associated with some carbonatites.

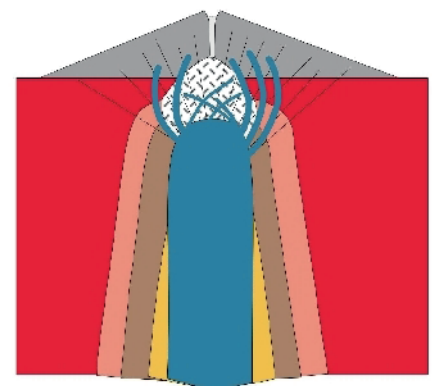
Vein deposits of thorium, fluorite, or rare earth elements may be associated with carbonatites, and may be hosted internal to or within the metasomatized aureole of a carbonatite. As an example the Palabora complex of South Africa

has produced significant copper (as chalcophyrite, bornite and chalcocite), apatite, vermiculite along with lesser magnetite, linnaeite (cobalt), baddeleyite (zirconium-hafnium), and by-product gold, silver, nickel and platinum. ([Source](#))

## Previous Coverage

[Report #4:](#) Another Grib Diamond Mine in Finland?

[Report #3:](#) Drill Program to Find One of the “Trump Metals”: Niobium



Alkalischer Stratovulkan	Karbonatit
Natro-Karbonatit	Ijolit
Brekzie	Nephelin Syenit
Cone Sheets	Syenit Fenit
Karbonatit Ring Dykes	Basement in der Kontaktzone fenitisiert

Schematic cross-section of a carbonatite complex ([source](#))





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All statements in this report, other than statements of historical fact should be considered forward-looking statements. Much of this report is comprised of statements of projection. Statements in this report that are forward looking include that Arctic Star Exploration Corp. can and will start exploring; that exploration has or will discover a deposit; that the company can raise sufficient funds for further exploration or development; that any of the mentioned mineralization indications or estimates are valid or economic; that today's announced acquisition will be completed; that the company will start working on this new property immediately with re-logging and first time sampling of up to 14 core holes and that these holes were never assayed for diamonds; that the company may report assay results soon, potentially making a striking discovery. Such statements involve known and unknown risks, uncertainties and other factors that may cause actual results or events to differ materially from those anticipated in these forward-looking statements. Risks and uncertainties respecting mineral exploration and mining companies are generally disclosed in the annual financial or other filing documents of Arctic Star Exploration Corp. and similar companies as filed with the relevant securities commissions, and should be reviewed by any reader of this report. In addition, with respect to Arctic Star Exploration Corp., a number of risks relate to any statement of projection or forward statements, including among other risks: the receipt of all necessary approvals and permits; the ability to conclude a transaction to start or continue exploration; uncertainty of future diamond and commodity prices, capital expenditures and other costs; financings and additional capital requirements for exploration, development, construction, and operating of a mine; the receipt in a timely fashion of further permitting for its legislative, political, social or economic developments in the jurisdictions in which Arctic Star Exploration Corp. carries on business; operating or technical difficulties in connection with mining or development activities; the ability to keep key employees, joint-venture partner(s), and operations financed. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue

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Stephan Bogner studied at the



International School of Management (Dortmund, Germany), the European Business School (London) and the University of Queensland

(Brisbane, Australia). Under supervision of [Prof. Dr. Hans J. Bocker](#), Stephan completed his diploma thesis ("Gold In A Macroeconomic Context With Special Consideration Of The Price Formation Process") in 2002. A year later, he marketed and translated into German Ferdinand Lips' bestseller („Gold Wars"). After working in Dubai for 5 years, he now lives in Switzerland and is the CEO of [Elementum International AG](#) specialized in duty-free storage of gold and silver bullion in a high-security vaulting facility within the St. Gotthard Mountain Massif in central Switzerland.

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