# Gold in Japan

## *"A Unique Opportunity, A Unique Strategy"*

www.irvresources.com

**March 14, 2017**

IRV:CNX|IRVRF:OTC

Background: Omui implosion breccia, 480 gpt Au, 9,660 gpt Ag

# Disclaimer

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Some statements in this presentation contain forward-looking information (within the meaning of Canadian securities legislation), including without limitation statements as to the potential, through exploration work including drilling, to define a mineral resource. These statements address future events and conditions and, as such, involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the statements. Such factors include, without limitation, the ability to complete exploration activities including future drilling as currently contemplated, customary risks of the mineral resources exploration industry as well as Irving Resources Inc. ("Irving" or the "Company") having sufficient cash to fund exploration activities, as well as other risks and factors mentioned in the continuous disclosure filings of Irving which can be found under its profile on the SEDAR website (www.sedar.com ).

Shareholders and prospective investors are therefore cautioned not to place undue reliance on forward-looking information. Irving undertakes no obligation to update publicly or otherwise revise any forward-looking information whether as a result of new information, future events or other such factors which affect this information, except as required by law.

Dr. Quinton Hennigh, the Company's Technical Advisor and Director and a Qualified Person as defined by National Instrument 43-101, has approved the technical contents of this presentation.

Background: Omui implosion breccia, 480 gpt Au, 9,660 gpt Ag

# Capital Structure

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## Capital Structure (March 2017):

| | |
|---|---|
| Shares Outstanding: | 31,840,406 |
| Options Outstanding: | 1,738,334 |
| (Directors, Officers, Employees and Consultants) | |
| Warrants Outstanding: | 14,107,452 |
| 750,000 at $0.20 – February 4, 2018 | |
| 376,958 at $0.30 – February 5, 2018 | |
| 5,660,000 at $0.20 – June 21, 2018 | |
| 7,320,494 at $0.55 – November 10 & 22, 2019 | |
| Issued Shares – Fully Diluted: | 47,686,192 |
| Management/Directors (FD): | 22.28% |

Background: N Honpi vein, 67.6 gpt Au, 1,060 gpt Ag

# Directors, Management, Advisors and Contractor

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**Akiko Levinson, President, CEO, Director** – Ms. Akiko Levinson has over 20 years of experience in the junior mining market including mining finance and 'end-to-end' rare earth mineral investment. Ms. Levinson was previously the President and a director of Gold Canyon Resources Inc. and is currently a director of Novo Resources Corp.

**Quinton Hennigh, Director and Technical Advisor** – Dr. Quinton Hennigh is an economic geologist with more than 25 years of exploration experience with major gold mining firms including Homestake Mining, Newcrest Mining and Newmont Mining. Currently, Dr. Hennigh is President, CEO and director of Novo Resources Corp. and director of TriStar Gold Inc., Precipitate Gold Corp. and NV Gold Corp.

**Dr. Kuang Ine Lu, Director** – Dr. Lu has extensive experience in various roles in the mining industry including technical advisor, director and CEO of a producing mining company. Dr. Lu holds a Ph.D. in Economic Geology from the University of Tokyo.

**Kevin Box, Director** – Mr. Kevin Box is a Geographic Information Systems Analyst specializing in mineral exploration for over 14 years. Mr. Box is currently the GIS and Research Manager for Irving Resources and Novo Resources Corp.

**Lisa Sharp, CFO** – Ms. Lisa Sharp, CPA, CGA has over 15 years of senior management experience in a variety of industries including mining, environmental technology and remediation. For the past decade, she has focused on public companies listed on the TSX, TSX Venture Exchange and AMEX.

**Hidetoshi Takaoka, Technical Advisor** - Mr. Hidetoshi Takaoka is a geologist with more than 40 years exploration and mining experience. Mr. Takaoka spent the majority of his time with Sumitomo Metal Mining Co. Ltd. (SMM) where he was instrumental in early exploration at Hishikari Mine, Japan and was responsible for the discovery of the world class Pogo Mine, Alaska. Mr. Takaoka' guidance has proved invaluable as Irving has acquired its strategic landholdings in Japan.

**Mitsui Mineral Development Engineering Co., Ltd. ("MINDECO")** - Mr. Haruo Harada, a director and geologist, is the team leader for MINDECO which supports Irving with most facets of operating in Japan including filing applications, permitting and field work. MINDECO has an extensive track record of working in the natural resource industry in Japan from which Irving benefits greatly.

# Working in Japan

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**Working in Japan is all about building relations and trust.**

**Irving is uniquely qualified to explore in Japan:**

- **Our team is mostly Japanese.**
- **Mitsui Mineral Development Engineering Co., Ltd. ("MINDECO") is our lead contractor.**
- **Built a long-standing relationship with Japan Oil, Gas and Metals National Corporation ("JOGMEC").**
- **Developed close connections with many Japanese mining houses.**
- **Established strong relations with the Japanese academic community.**
- **Earned a good report with Japanese government authorities.**
- **Developed excellent relations with local communities and forestry association.**

Background: N Honpi vein, 67.6 gpt Au, 1,060 gpt Ag

# Gold Mining in Japan

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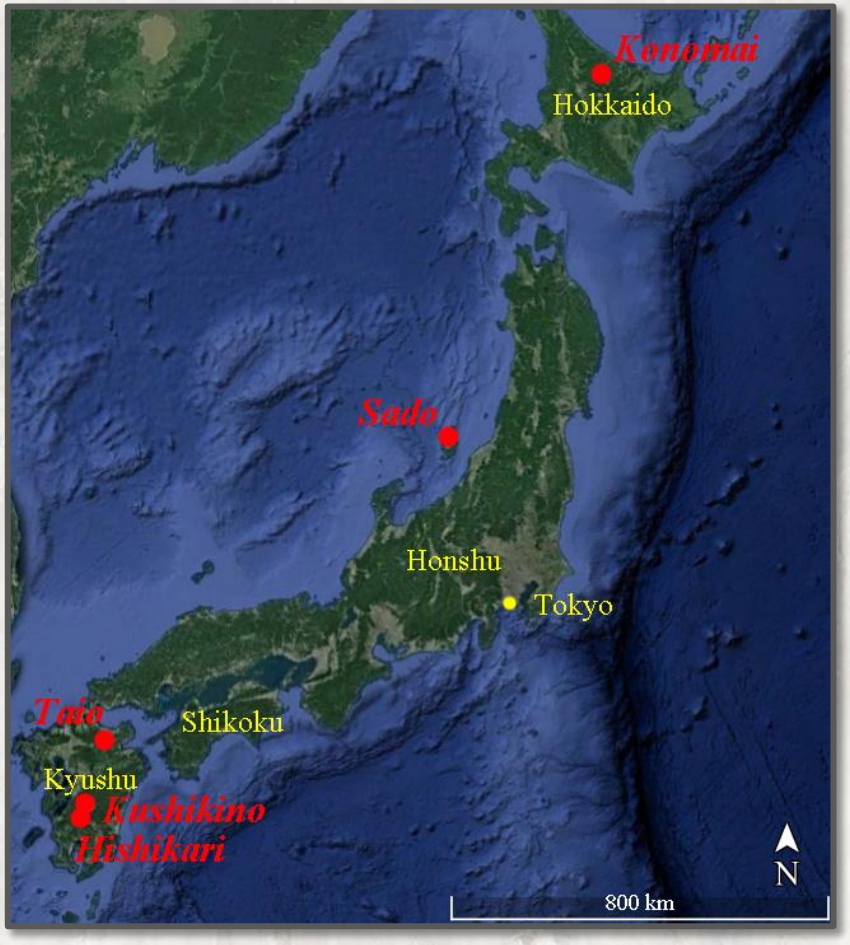
Since the beginning of the Edo period (1601), over 20 Moz of gold have been produced from Japanese gold mines…the top five being *Hishikari, Sado, Konomai, Kushikino and Taio*. All of these mines exploit high-grade epithermal deposits.

*Hishikari* mine (Sumitomo Metal Mining Co. Ltd.), Japan's largest gold mine, has produced over 7 Moz Au (as of March, 2015) since its discovery in 1981. Current head grades are around 30 gpt Au. Considerable reserves and resources remain.

Japan's second largest gold mine, *Sado* Kinzan (Mitsubishi Materials Corporation), produced 2.51 Moz Au and 74 Moz Ag over a continuous mine life of 388 years beginning in 1601. Grades averaged 5.2 gpt Au and 153 gpt Ag.

*Konomai* mine (Sumitomo Metal Mining Co. Ltd.), Japan's third largest gold mine, produced 2.35 Moz Au and 38.6 Moz Ag between its discovery in 1915 and mine closure in 1973.




Background: Hokuryu vein, 51.4 gpt Au, 637 gpt Ag

# Modern Gold Mining in Japan

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Hishikari mine is the largest active gold mine in Japan. Gold production is about 225 Koz per year. A head grade of 30 gpt Au is achieved by ore sorting, optical ore sorters used for small pieces of rock and hand labor used for sorting larger pieces (*right*).

Hishikari has no mill. High-grade ore is shipped to Sumitomo Metal Mining's smelters where it is utilized as smelter flux. Gold and silver are recovered during smelting and refining of copper resulting in high recoveries and low processing costs.

Similarly, silica-rich gold ores ("keisan-ko") from the Akeshi mine (Mitsui Kushikino Kozan Co. Ltd.) and Kasuga and Iwato mines (Nippon Mining) are utilized for smelter flux.

The Kushikino mine complex (Mitsui Kushikino Kozan Co. Ltd.) is the only operating gold mine utilizing a CN mill for processing. Gold-bearing industrial waste and low grade ore from Hishikari are also treated at this facility.


Background: Omui implosion breccia, 480 gpt Au, 9,660 gpt Ag

# Modern Gold Mining in Japan

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Japan is an environmentally conscientious country. Although mining is still active, it must be conducted in the utmost responsible manner. Tolerance for large open pit mining and commensurate milling complexes and tailings dams is low.

Hishikari is an underground mine with a very small surface footprint (*upper right*). Ore is shipped offsite and waste rock is either returned underground or crushed and used for road aggregate. This is the ideal Japanese mine.

Sumitomo Metal Mining Co. Ltd. has done an exquisite job reclaiming the Konomai mine site to its native state (*lower right*). Such responsibility is what the Japanese people expect from modern mining companies.

Background: Nankoo vein, 21.2 gpt Au, 157 gpt Ag

# Irving's Strategy

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**Irving recognizes the sensitivity of mining gold in Japan and has developed a strategy to honor this. Criteria Irving uses to select exploration targets include:**

- **High-silica, precious metal-rich veins that are suitable as smelter flux. No milling will be required.**
- **Deposits with low sulfur and deleterious elements including As, Sb and Hg, thus making them environmentally friendly and suitable as smelter flux.**
- **Deposits that will have a small surface footprint when mined.**
- **Ideally near shipping facilities enabling easy transport to Japanese smelters.**
- **Low impact on communities, cultural heritage and environmentally sensitive areas.**

Background: Omui gold-bearing sinter, hot spring deposit

# Low Sulfidation Epithermal ("LSE") Veins

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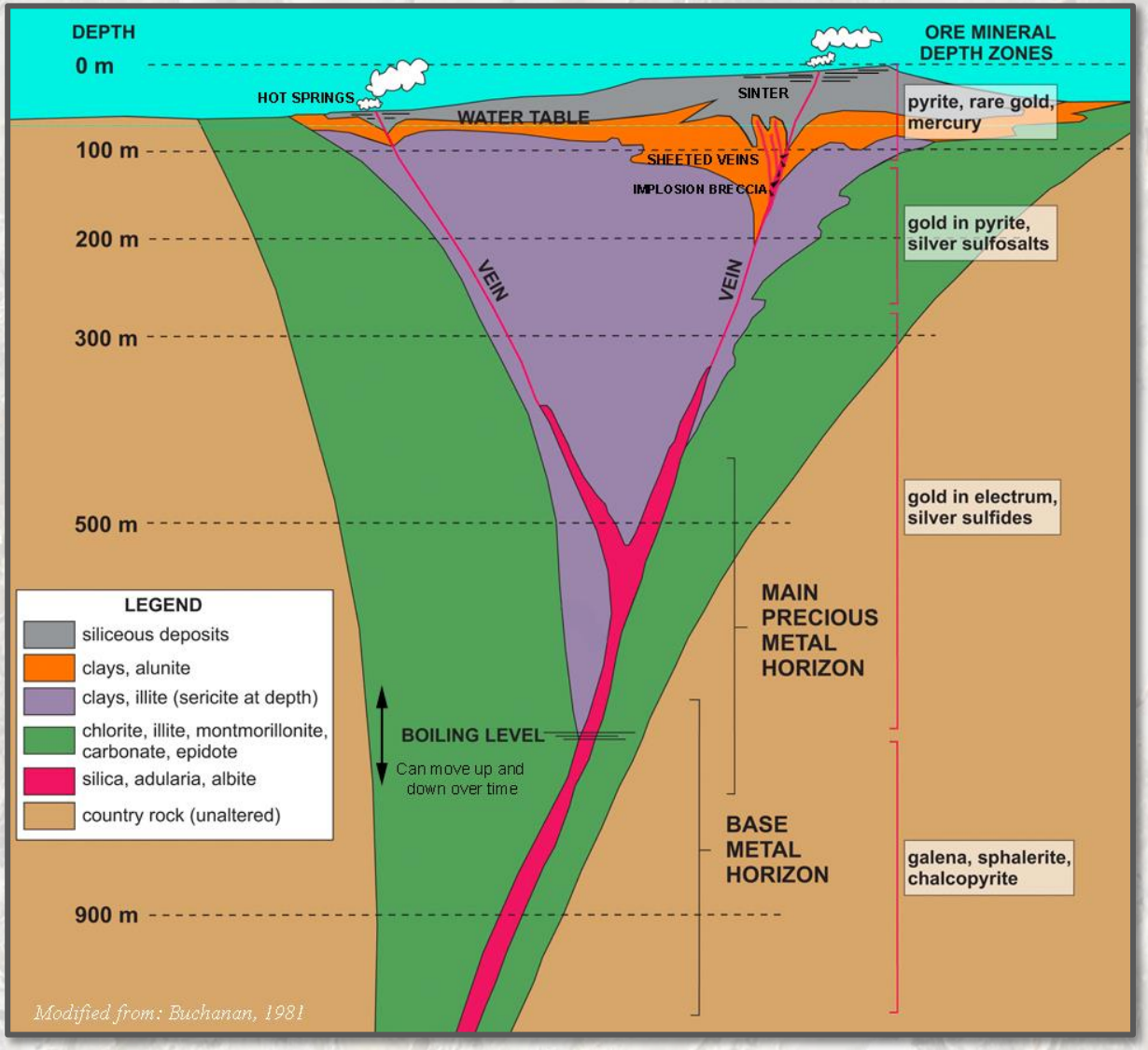
This is the classic hot spring epithermal vein model in which gold and silver precipitate in response to boiling as geothermal waters rise toward surface (*right*).

Deposits of silica (sinter) and clay form at surface such as at Yellowstone Park, USA (*below*).




Background: N Honpi vein, 67.6 gpt Au, 1,060 gpt Ag

# Variations on LSE Vein Systems

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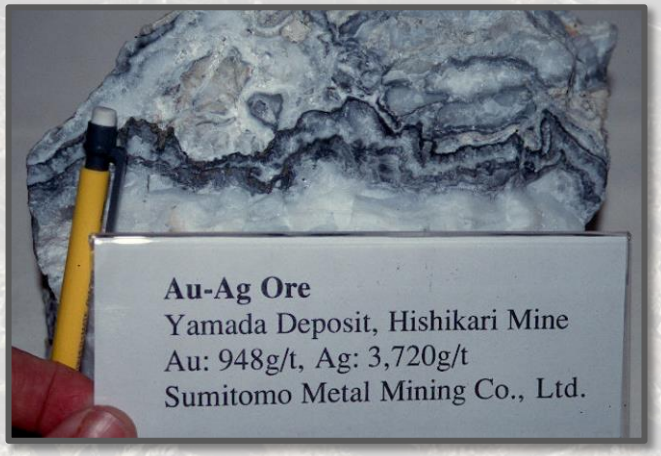
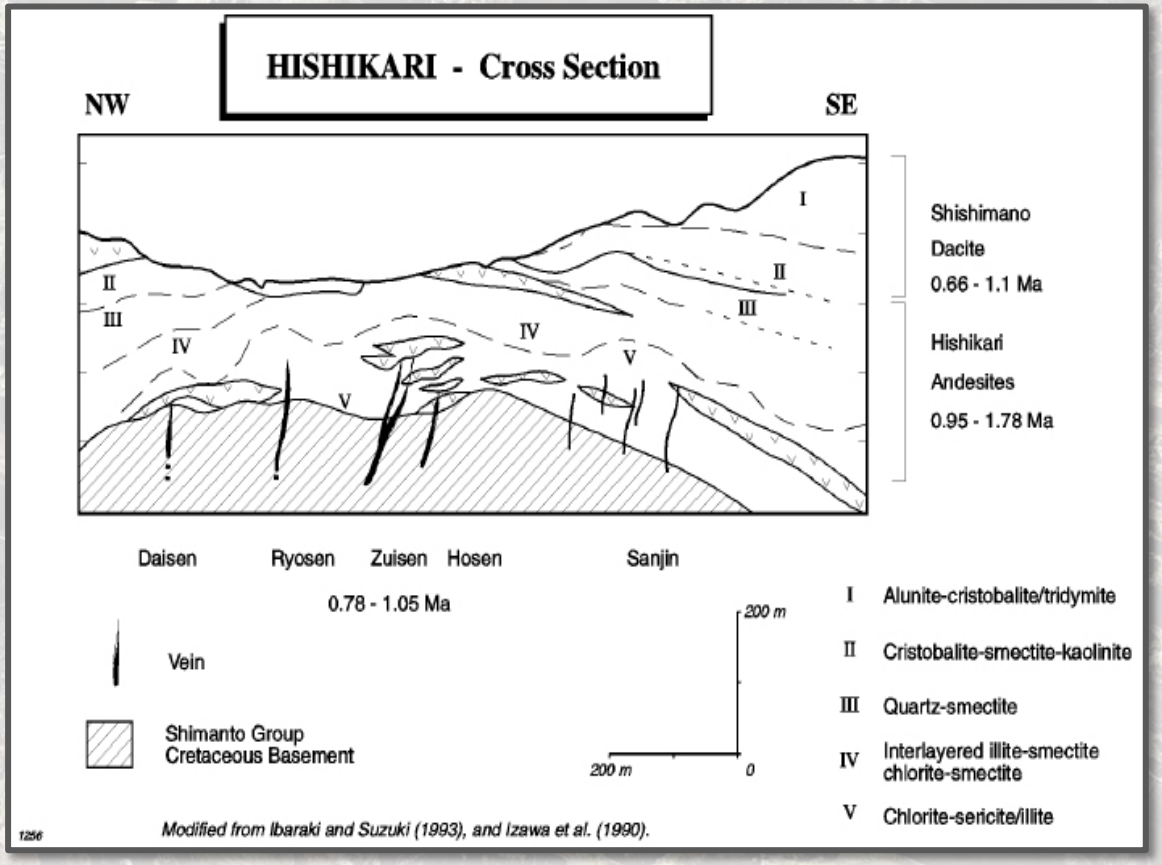
At Hishikari, veins preferentially occur near a major unconformity between Cretaceous sedimentary rocks and overlying Tertiary volcanic rocks (*right*). Extensive clay alteration is present at surface.

Veins locally bear abundant ginguro, banded silver sulfosalts, and electrum (*below*).



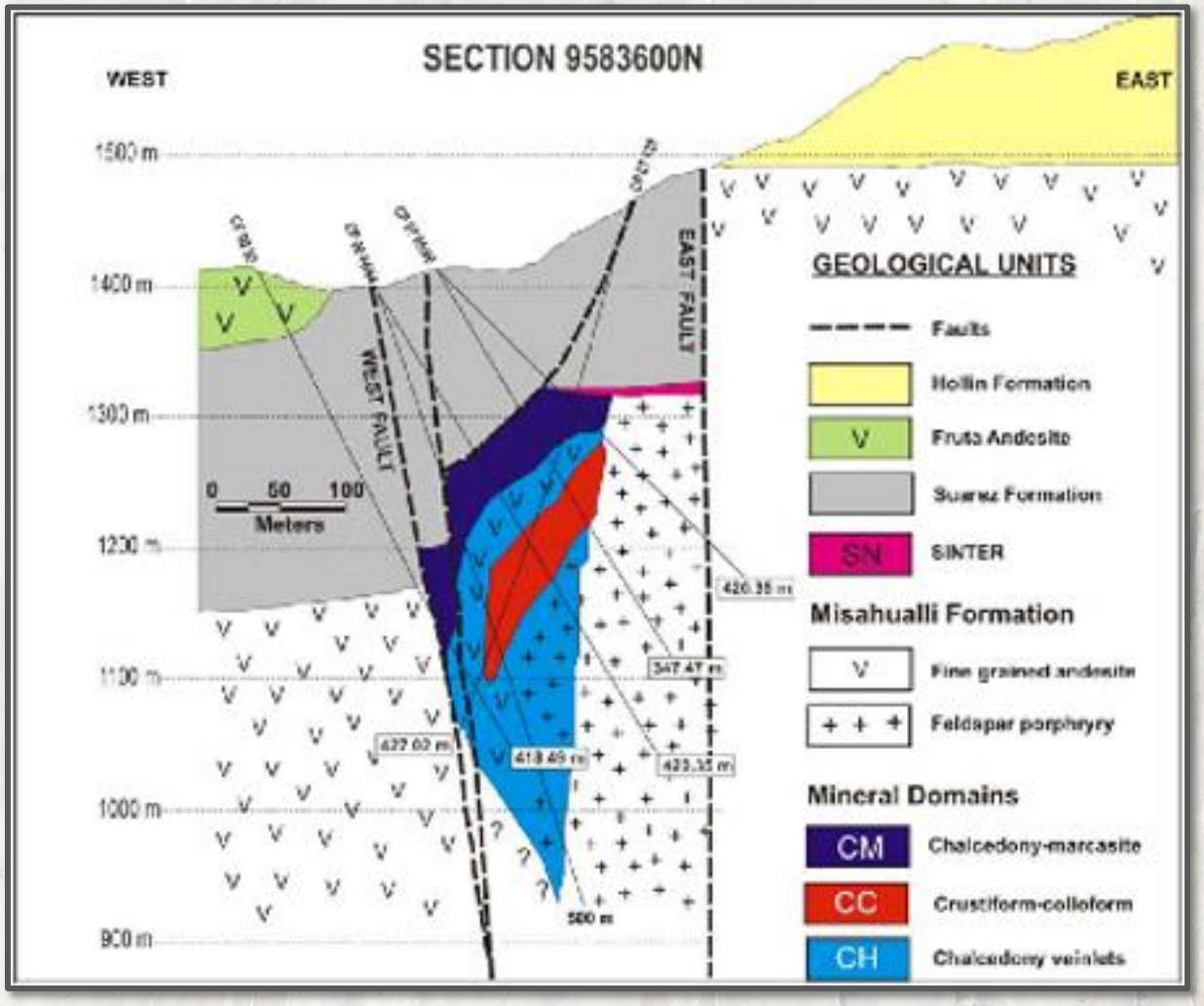

Background: Omui implosion breccia, 480 gpt Au, 9,660 gpt Ag

# Variations on LSE Vein Systems

IRV:CNX

**The 9.5 Moz Fruta del Norte deposit (Lundin Gold Inc.) in Ecuador was partially eroded and buried under post-mineral cover (*right*). It has also been truncated by post-mineral faulting.**

**Veins bear abundant pink rhodochrosite (Mn carbonate) as well as ginguro and silica (*below*).**


Background: Hokuryu vein, 51.4 gpt Au, 637 gpt Ag

# Irving's Hokkaido LSE Vein Projects

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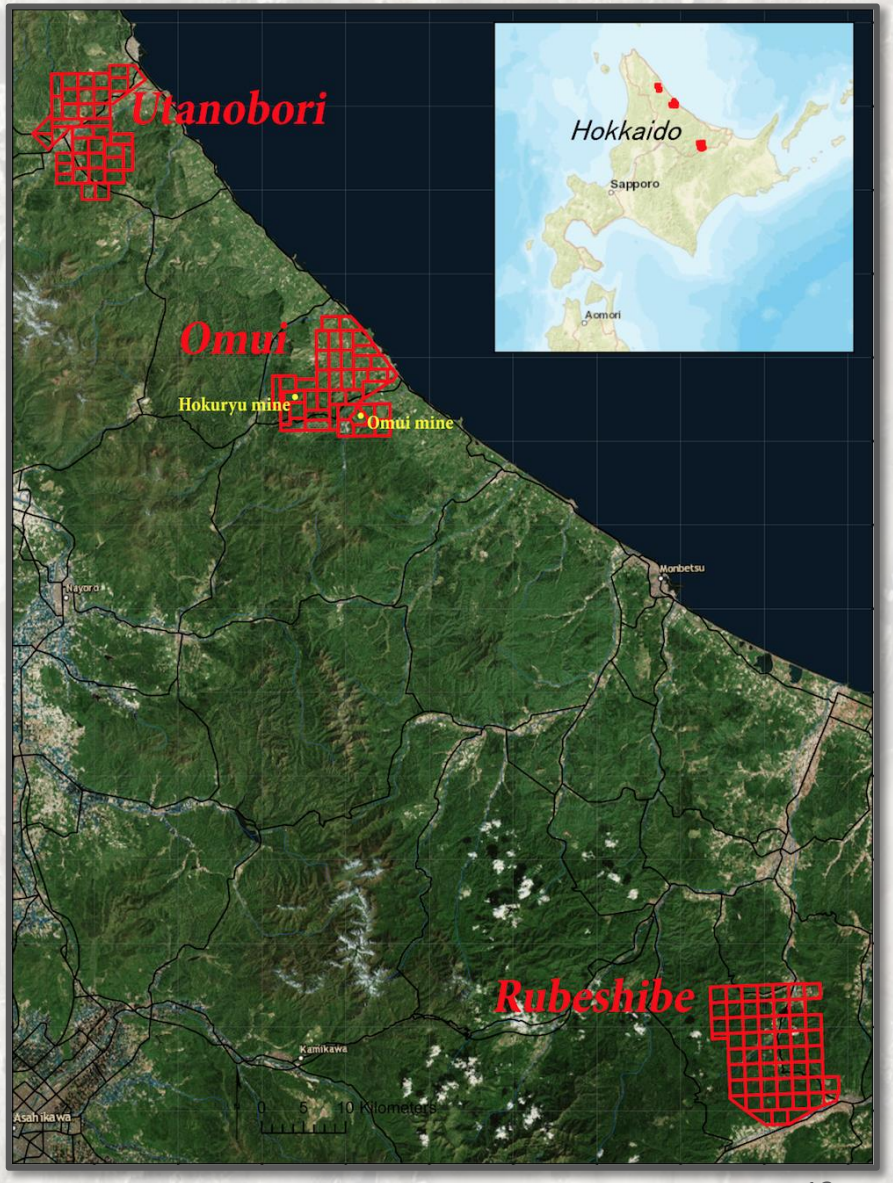
Irving has established three large LSE vein projects in northern Hokkaido:

- Omui: 131.72 sq km (13,172 hectares) of prospecting license applications, a 2.98 sq km (298 hectares) mining license, and 0.48 sq km (48 hectares) of surface rights.

- Utanobori: 121.55 sq km (12,155 hectares) of prospecting license applications.

- Rubeshibe: 188.80 sq km (18,880 hectares) of prospecting license applications.

- All prospecting licenses have been accepted the Ministry of Economy, Trade and Industry ("METI"), Hokkaido Bureau, and a multi-step review is underway for the final approval. MINDECO is assisting the Company throughout the process.




Background: Nankoo vein, 21.2 gpt Au, 157 gpt Ag

# Omui High-Grade Au-Ag Project

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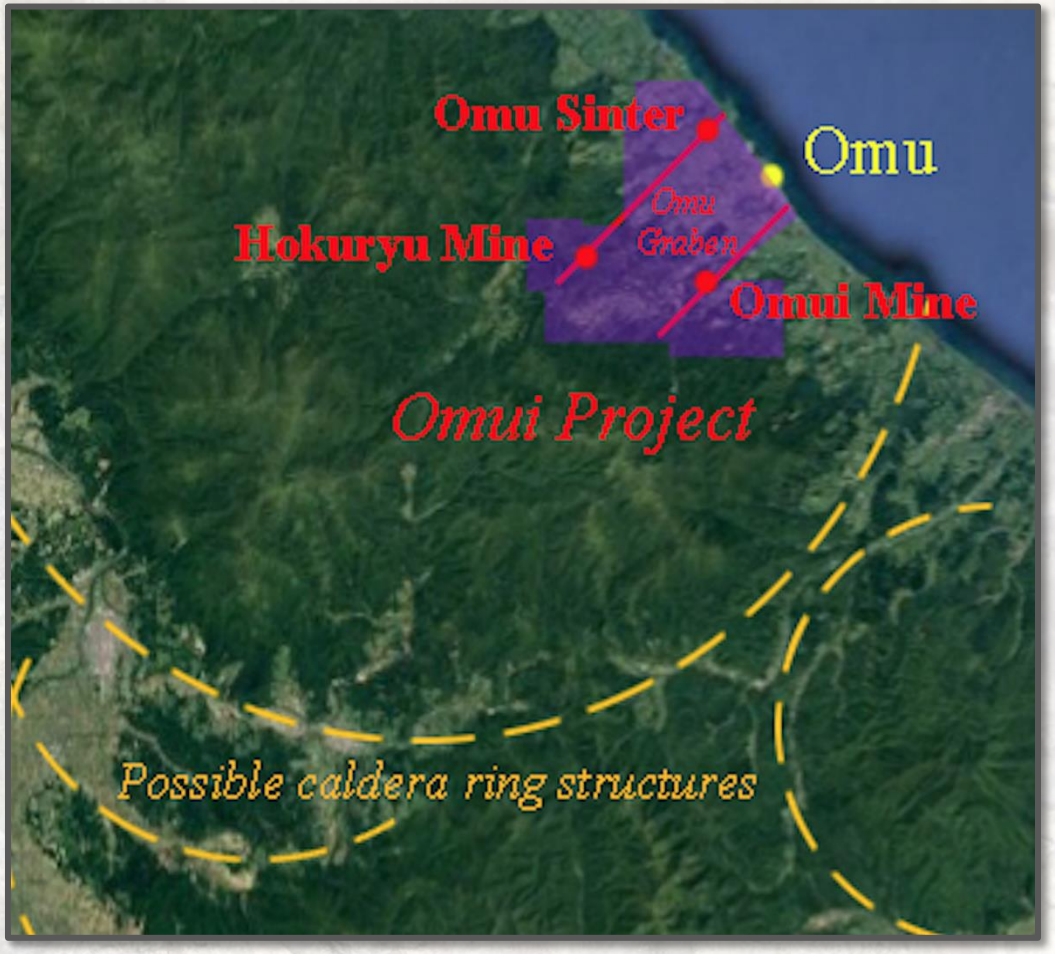
The Omui high-grade Au-Ag project encompasses a 12 km-long, 7 km-wide, northeast-trending volcanic graben.

The historic Omui mine (1920's) is situated along its southeast margin and Hokuryu mine (1930's-1943), along the northwest.

A major fault extends from Hokuryu mine to the coast. In October, 2016, Irving discovered a 1.2 km long, up to 12 m high sinter terrace straddling this structure. Sinter is comprised of layered silica deposited by hot spring fluids as they emerge from the ground and flow across the surface and is a key indicator of past hydrothermal activity.




Background: Omui gold-bearing sinter, hot spring deposit

# Omui High-Grade Au-Ag Project

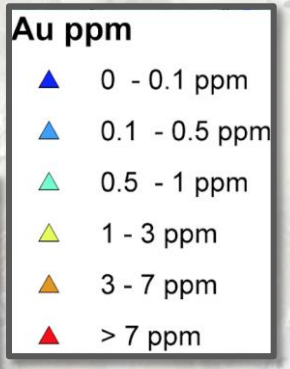
IRV:CNX

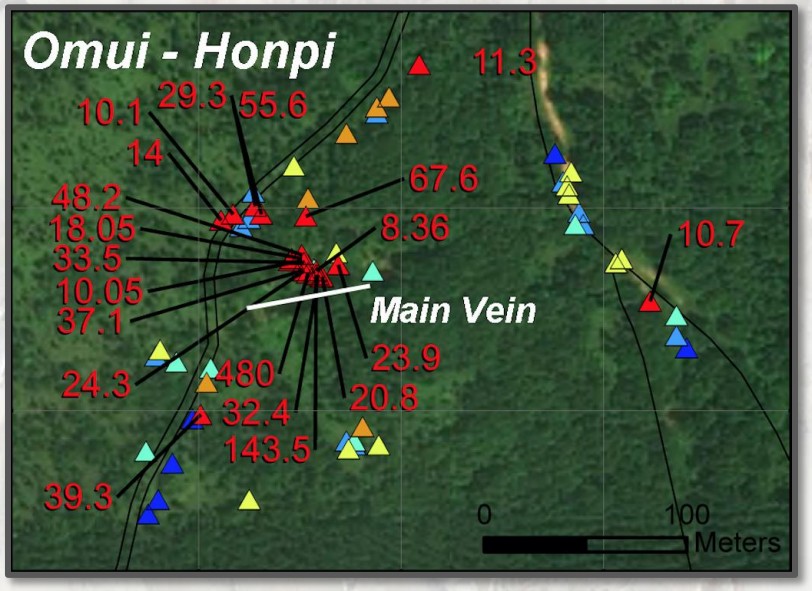
Initial rock chip sampling at Honpi and Nanko near the historic Omui mine site returned many high-grade gold values.

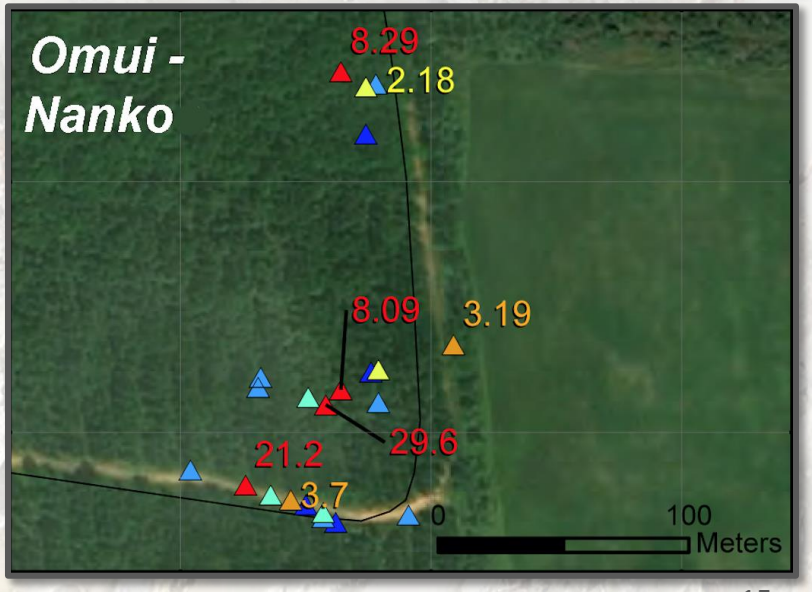
Sulfur and deleterious element values are low.

Many float samples originate from areas with no evidence of past mining suggesting new veins remain to be discovered.

Extensive clay alteration at surface and the presence of Cretaceous sedimentary rocks at depths of around 250 m suggest potential for a Hishikari-like setting.




Background: N Honpi vein, 67.6 gpt Au, 1,060 gpt Ag

# Omui High-Grade Au-Ag Project

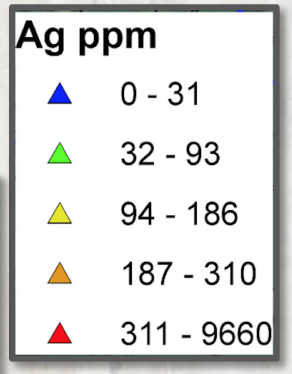
IRV:CNX

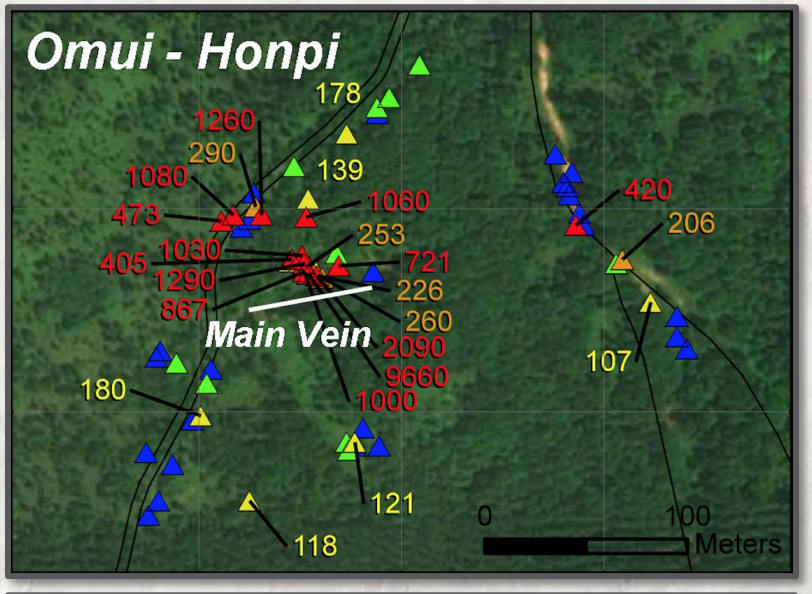
Very high-grade silver values are present at Honpi. Ginguro was observed in many samples.

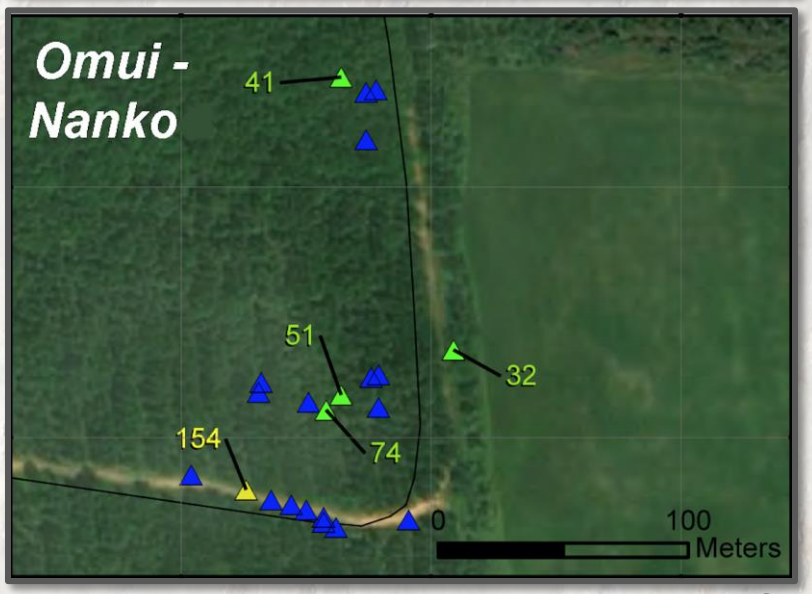
Vein textures at Honpi suggest near-surface deposition of high grade mineralization.

At Nanko, most rock samples appear to be various types of sinter suggesting erosion has not yet cut down into the higher grade part of the system.

Further rock sampling and systematic soil sampling are necessary to further evaluate the potential of the Omui mining right.




Background: Hokuryu vein, 51.4 gpt Au, 637 gpt Ag

# Omui High-Grade Au-Ag Project

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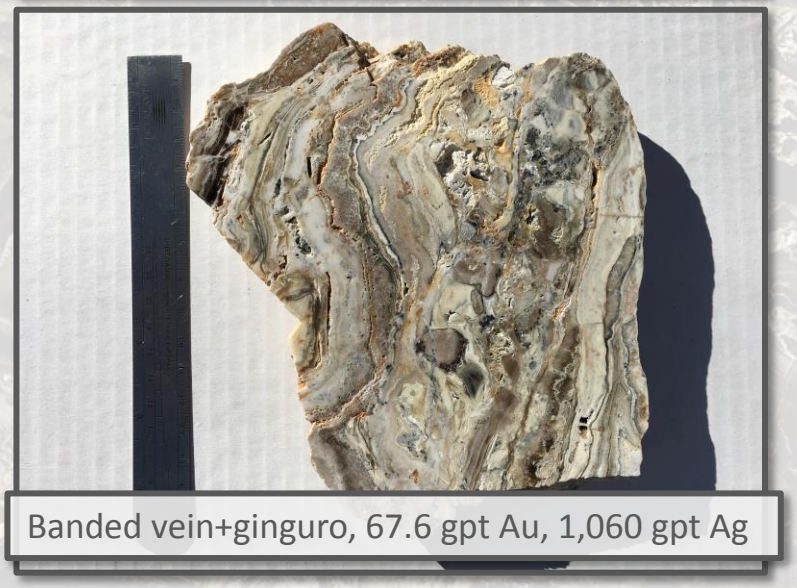
**Vein textures including implosion breccias, poly-stage vein formation and cross-cutting veins suggest mineralization at Honpi formed in a dynamic near-surface setting.**

Implosion breccia, 480 gpt Au, 9,660 gpt Ag

Cross-cutting veins; un-assayed



Banded vein+ginguro, 67.6 gpt Au, 1,060 gpt Ag

Background: Omui implosion breccia, 480 gpt Au, 9,660 gpt Ag

# Omui High-Grade Au-Ag Project

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**At Nanko, most rocks display characteristics of sinter, near-surface silica deposited by hot springs, suggesting good potential for high-grade mineralization at depth.**

Finely laminated sinter

Laminated sinter/sandstone

Possible fossil stromatolite

Background: Nankoo vein, 21.2 gpt Au, 157 gpt Ag

# Omui High-Grade Au-Ag Project

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Samples collected from the Hokuryu mine site display high-grade gold and silver values.

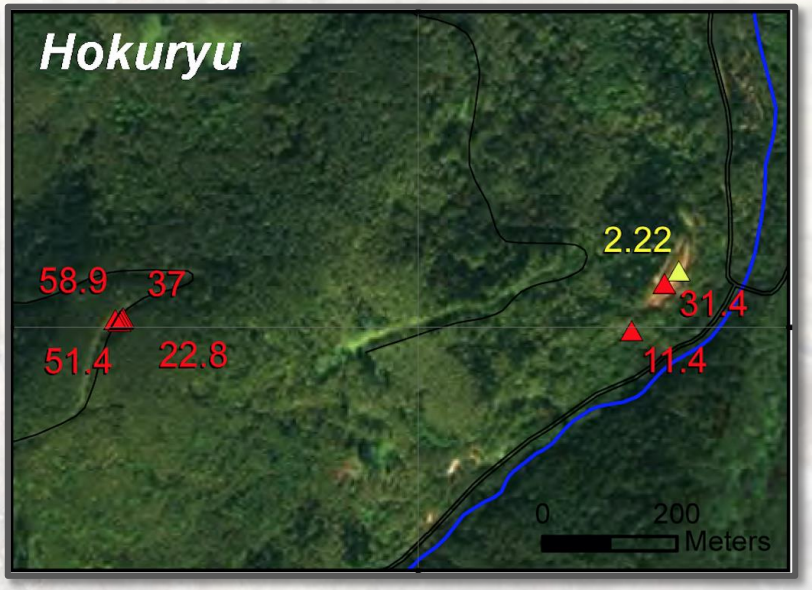
Veins are well-banded with ginguro, and probably formed at a deeper level than those at Omui mine site.

Areas around Hokuryu are virtually unexplored.

Hokuryu vein, 51.4 gpt Au, 637 gpt Ag

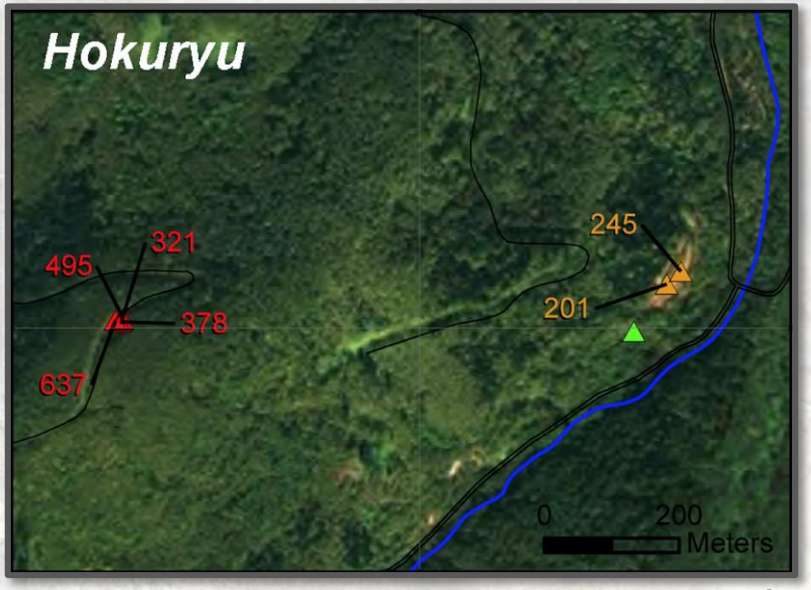
**Au ppm**

- 0 - 0.1 ppm
- 0.1 - 0.5 ppm
- 0.5 - 1 ppm
- 1 - 3 ppm
- 3 - 7 ppm
- > 7 ppm




**Ag ppm**

- 0 - 31
- 32 - 93
- 94 - 186
- 187 - 310
- 311 - 9660




Background: Omui gold-bearing sinter, hot spring deposit

# Omui High-Grade Au-Ag Project

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**Irving discovered a large sinter terrace situated on the same structure as Hokuryu mine and 10 km northeast (*right*). A major, potentially vein-hosting, fault lies nearby.**

**A sulfidized sample collected from the base of the terrace (*below*) returned appreciable gold and silver values suggesting high-grade mineralization may be present at depth.**

Sulfidized sinter: 3.8 gpt Au, 14 gpt Ag

8 m high sinter terrace exposed in cliff

Background: N Honpi vein, 67.6 gpt Au, 1,060 gpt Ag

# Utanobori High-Grade Au-Ag Project

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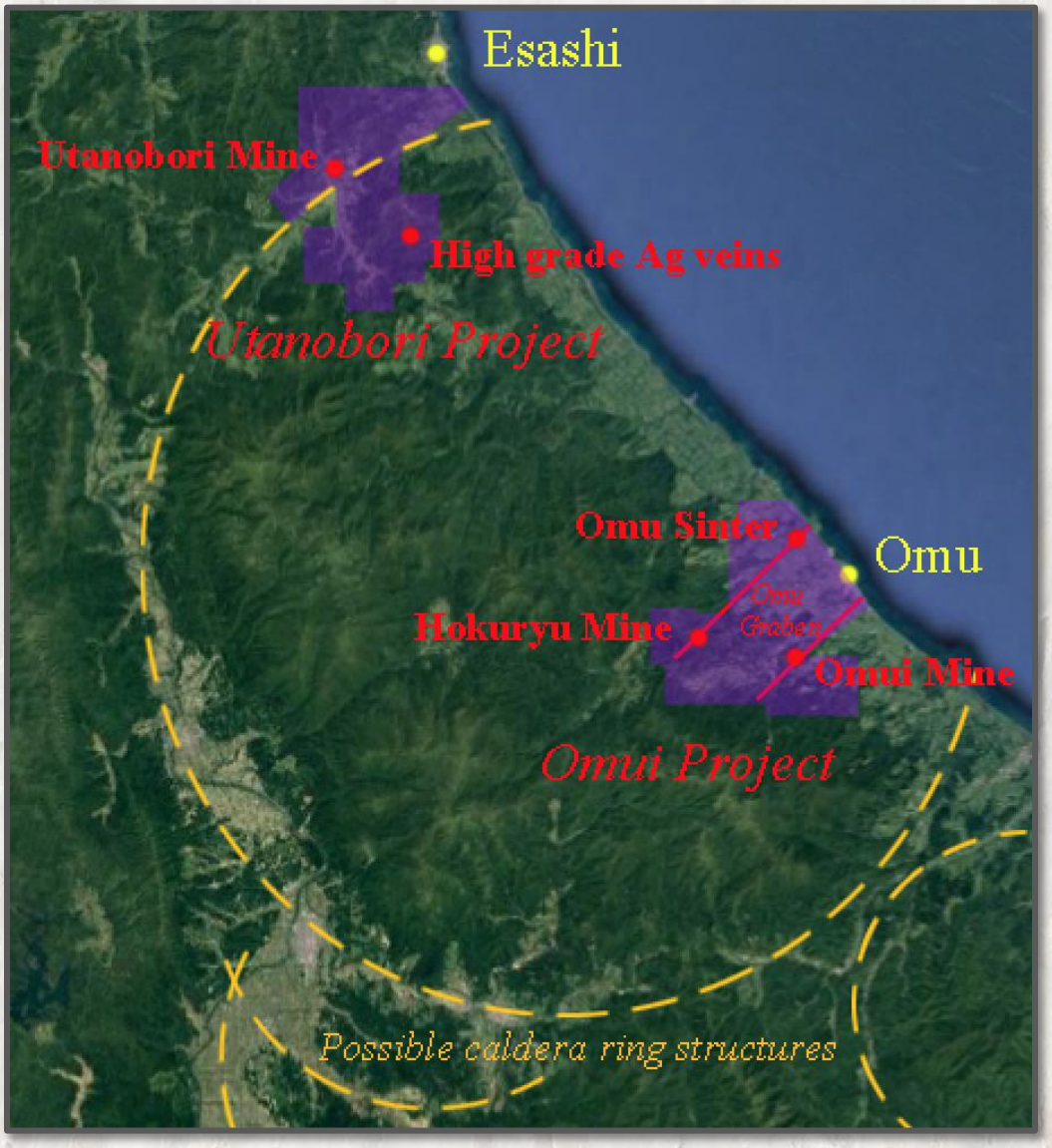
In late 2016 and early 2017, Irving filed prospecting license applications over the historic Utanobori mine and surrounding areas.

Historic reports mention several occurrences of sinter terraces in the area as well as outcropping high-grade silver veins. Irving verified this by collecting a vein sample grading 231 gpt Ag and 0.4 gpt Au in late 2016.

Utanobori appears to be centered on the margin of a ~75 km wide ring structure, possibly a caldera margin.




Background: Hokuryu vein, 51.4 gpt Au, 637 gpt Ag

# Rubeshibe High-Grade Au-Ag Project

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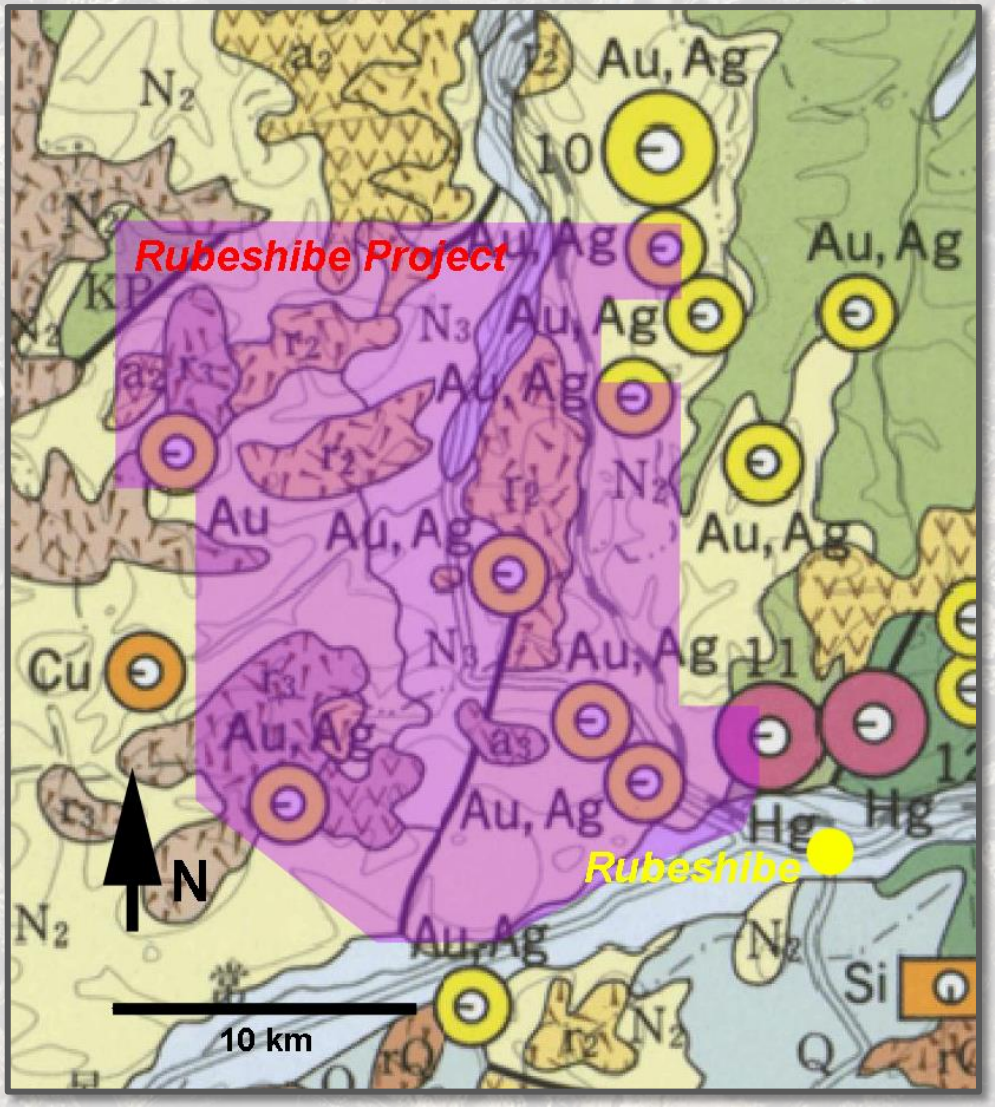
The Rubeshibe prospecting license applications cover parts of a broad Tertiary-aged graben filled with intermediate to felsic volcanic rocks overlying a thick sequence of Mesozoic-aged sedimentary rocks, a Hishikari-like setting.

Hot spring alteration and silicification are evident in multiple areas and appear related to late-stage rhyolitic domes emerging along graben faults.

Several small epithermal Au-Ag veins were mined in the project area, mostly prior to the middle of the last century.

Japan Gold Corp. holds prospecting license applications immediately east of Rubeshibe.




Background: Omui implosion breccia, 480 gpt Au, 9,660 gpt Ag

# 2017 Strategic Overview

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- Irving plans to acquire additional high-grade epithermal vein projects in Japan over the next few months and prior to the 2017 field season.
- Fieldwork will begin on Hokkaido after snowmelt around May and will consist of prospecting activities including rock and soil sampling, mapping and ground-based geophysics.
- Work toward approval of all prospecting license applications and the final transfer of the Omui mining license.
- A treasury of nearly $7M puts Irving in a very strong position to undertake aggressive fieldwork needed to identify future drill targets.

Background: Omui implosion breccia, 480 gpt Au, 9,660 gpt Ag

# African PVA with JOGMEC

IRV:CNX

**Irving holds Project Venture Agreements (PVA) with Japan Oil, Gas and Metals National Corporation (JOGMEC) for the joint exploration programs in the United Republic of Tanzania, the Republic of Madagascar and the Republic of Malawi.**

**Spring Take Limited, its wholly-owned subsidiary in Tanzania, holds four Prospecting Licences to explore for copper and gold in the Mpwapwa District of the Dodoma Region in east-central Tanzania.**

**Spring Stone Limited, its wholly-owned subsidiary in Malawi, holds Exclusive Prospecting License to explore for rare earth elements in Mulanje District of Malawi.**

**Mitsui Mineral Development Engineering Co., Ltd. (MINDECO), in Japan, has been contracted as the operator of PVA programs.**


Background: Hokuryu vein, 51.4 gpt Au, 637 gpt Ag

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