

# THE KITAKAMI TIMES

*Iwate, the International Linear Collider, and You*



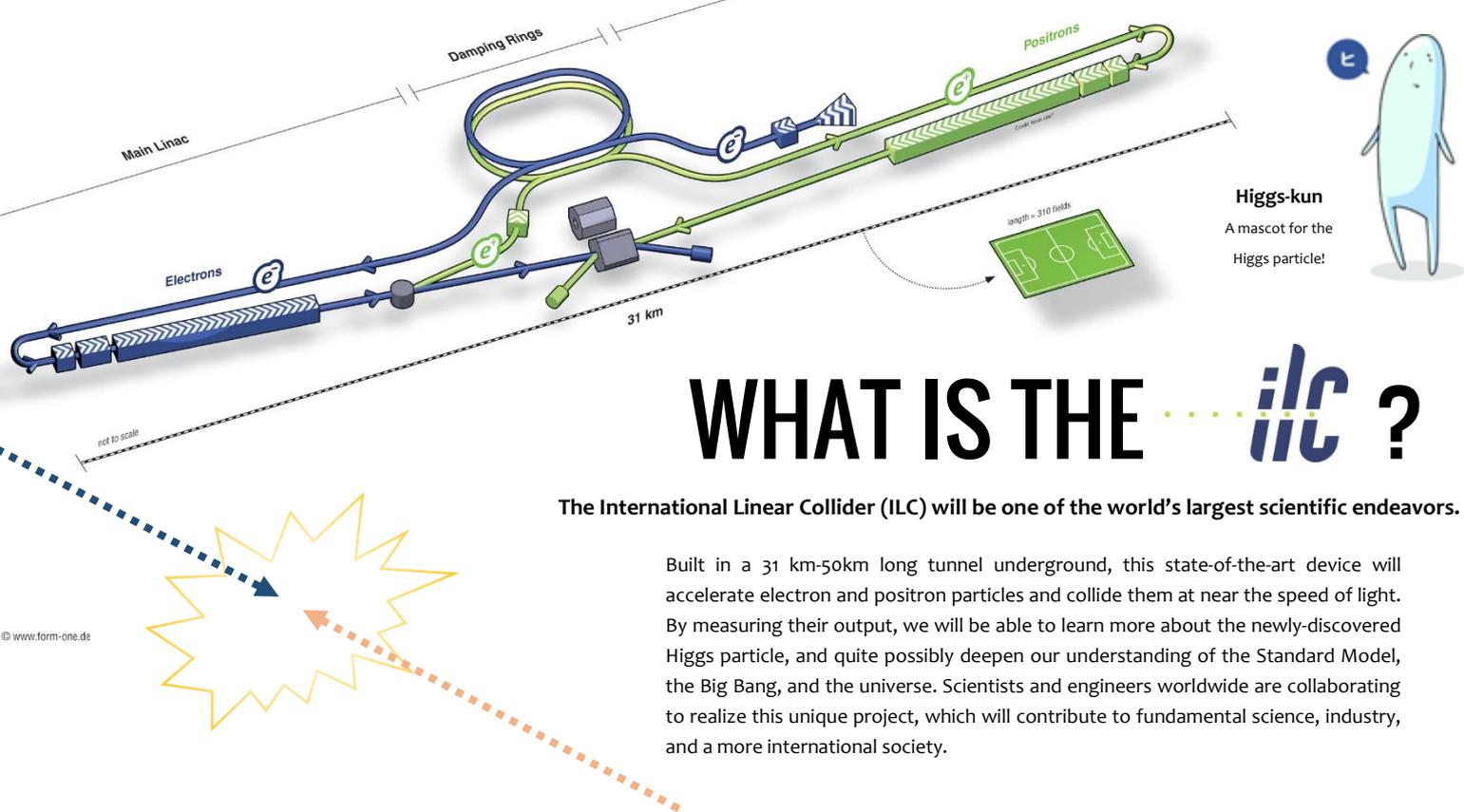
*In this issue...*

## The Story of Chida Precision Products

*A tale of electromagnetic horns, sleepless nights, and labors of love*

**Plus: Summer of ILC in Ichinoseki, the Sansa Odori Festival, and more**

The ILC team marches at Sansa Odori, the largest drum festival in the world.



# WHAT IS THE ?

The International Linear Collider (ILC) will be one of the world's largest scientific endeavors.

Built in a 31 km-50km long tunnel underground, this state-of-the-art device will accelerate electron and positron particles and collide them at near the speed of light. By measuring their output, we will be able to learn more about the newly-discovered Higgs particle, and quite possibly deepen our understanding of the Standard Model, the Big Bang, and the universe. Scientists and engineers worldwide are collaborating to realize this unique project, which will contribute to fundamental science, industry, and a more international society.

## THE JAPANESE CANDIDATE SITE

TOHOKU,  
NORTHERN  
JAPAN



### THE KITAKAMI MOUNTAINS ILC CANDIDATE SITE

#### Iwate Prefecture

A large prefecture in northern Japan, Iwate is home to the Kitakami candidate site for the ILC.

#### Oshu City

The ILC's northern end will lie in Oshu, which is also home to the Mizusawa National Astronomical Observatory.

#### Ichinoseki City

The ILC will pass through Ichinoseki City, one of the largest cities in Iwate. The ILC's interaction point will be in the northeast district of Daito.

The Kitakami mountains are a range of gentle, rolling mountains in Iwate and Miyagi with a thick granite bedrock – perfect conditions for an underground particle accelerator. Kitakami is a name with a lot of history in the region, such as the Kitakami River, Kitakami City, and even THE KITAKAMI TIMES!

#### Miyagi Prefecture

Directly south of Iwate, Miyagi holds both Kesennuma and Sendai cities in its borders.

#### Sendai City

Home to Tohoku University, Sendai is the urban center of the entire Tohoku region.

#### Kesennuma City

The southern tip of the ILC will lie in Kesennuma City. The city is hard at work rebuilding from the 2011 earthquake and tsunami.

## FOR THE FUTURE

If the ILC becomes a reality, about 10,000 researchers and their families around all over the world will come with their families to live in the area. An international hub of knowledge will be formed in our backyard, with leading edge research that will inspire new industries: medicine, IT, biotechnology, and many more. The ILC will be a great beacon of hope to the people of Tohoku, Japan, and the rest of the world. The entire region is joining together to make it a reality.

LEARN MORE

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International Linear Collider

OSHU CITY

# Chida Precision Products: A tale of electromagnetic horns, sleepless nights, and labors of love

By Anna Thomas



Electromagnetic horns before their trip to J-PARC

*In July, electromagnetic horns made by Oshu company Chida Precision Products were featured on “NHK World J-Innovators.” I love this story and went to their headquarters to hear the full tale. Here’s a shorter version of the article I wrote about them for our website:*

## Chida Precision Products and FSW

Chida Precision Products was established in 1979, with headquarters and the Maesawa factory in Maesawa ward, Oshu City, and two other factories in Towa (Hanamaki City) and Otsuchi Town.

With Friction Stir Welding, or FSW, a pin moves between the places you want to join, rotating while moving forward. The materials get softened by the friction but do not melt, and merge together. The depth is adjusted by the length of the pin. Normal welding melts metal pieces and joins them together, but the material, especially thin material, warps from the heat. FSW, on the other hand, softens in just a particular spot, so it doesn’t heat and warp up the surrounding area.

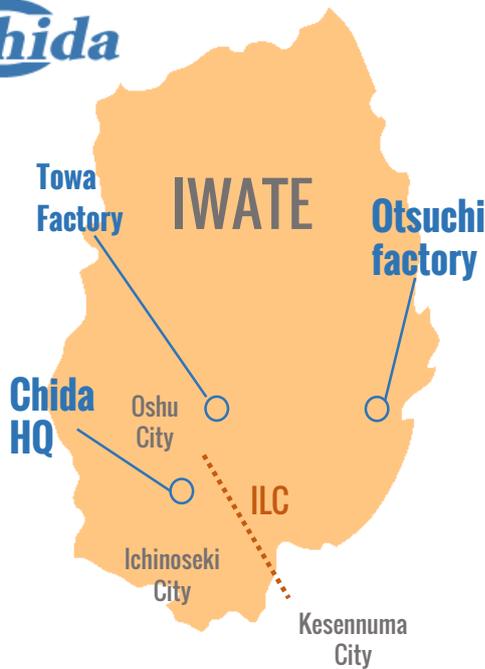
Other small to medium size companies were buying patented FSW machines and working with the technology that way. Chida Precision, however, got a

technological patent, bought a machine called a "bridge type multi-purpose machine" that was originally for milling, lathe turning, and something called 5 spindle process, made a new head portion and experimented until that machine could perform FSW.

## Electromagnetic Horns

Among the many facilities in J-PARC, Ibaraki Prefecture is the "Neutrino Experimental Facility." Protons are turned into a neutrino beam that is measured there, and then at another facility that is 295 kilometers away. As the protons turn into a series of particles on the way to becoming neutrinos, three progressively larger "electromagnetic horns" focus the particles while they still have an electric charge and can be affected.

The smallest horn was apparently small enough to make in-house, but Chida Precision Products was in charge of making the new medium and large horns. The horns are made of five separate parts, each one cut down into a rounded shape and then joined together using FSW. The medium horn has a diameter of 1 meter and is 2 meters long, while the large horn has a 1.5 meter diameter and is 2.5 meters long, yet both are only 3 millimeters thick (except for the joins, which are 4.5 mm).



Imagine being in charge of something much larger and more fragile than you are, that took the blood and sweat and tears of 1 1/2 years but was only as thick as two pennies.

The horns were the responsibility of Chida Precision Products until they rolled into J-PARC. As often happens with large parts, the company hired a carpenter and bought some wood and made a custom-made case to hold the horns during the long drive down. Both horns snuggled together in one large box, wrapped up and buffered by cardboard boxes, and arrived safely in J-PARC in January 2015.

### Do Technicians Dream of Electromagnetic Horns?

The story of how Chida Precision Products was entrusted with making the horns started at an expo in Tokyo. KEK was looking for a way to have the electromagnetic horns be manufactured entirely in Japan for the first time and asked another company to make the blueprints and search for someone that could perform FSW. This company met Chida Precision Products at an expo and had them make some parts using the technology. Then, the electromagnetic horn blueprints came out.

Chida Precision Products had worked on flat surfaces many times, but the horns were curved and three dimensional. How would this work on such a big, curved thing? How would they make the clamps? How would they make sure that big of a product didn't move around, and yet keep the places that needed to be joined accessible? How would they design the jig?

Director Yukie Chida recounted as follows: "The first blueprint came, and when [our employees] looked at it, they said, 'We don't think we can do this. No matter how you think about it, it's not possible.' But our president (Ms. Chida's father) is not the kind of man who likes to say, 'we can't do it.' So we said yes."

Making the horns took 1 and a half years. There were lots of sleeplessness nights. Everyone on the project, machine operators and otherwise, were experienced top level technicians, but "they really, really struggled with this, to the point where you wonder if they're going to stop coming to work. 'We can't sleep at night. When we close our eyes, we see the horn.' They were driven to the point of saying, 'we don't know how to make these,' but they accepted the order, so they had to make it."

Now 1 1/2 years later, after the completed horns were safely in J-PARC, Ms. Chida reflected on the experience with gratitude to her employees. "No product up to now has been this much of a challenge. It's our workers, but I really think they did a good job."

### Made in Otsuchi

The horns themselves were actually not manufactured inland, but at Chida's coastal Otsuchi factory.

The factory is 3 kilometers away from the ocean and remained unharmed 17 years later during the 2011 Tohoku Earthquake and Tsunami, but some employees lost their lives. Most had lost their homes. The Otsuchi factory was opened up as an emergency shelter, at the most housing about 80 people, including company employees as well as local people from the area.

In that same factory, in January 2015, a proud employee stood next to the completed horns. It's just one more example of science and industry coming together to rebuild what was lost.

## LEARN MORE ABOUT OSHU

[Oshu City ILC Promotion Division Homepage](#)

Search	<input type="text" value="Oshu City ILC"/>
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[Oshu City's ILC Facebook](#)

facebook	<input type="text" value="Oshu ILC Promotion Division"/>
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[Chida Precision Products \(Chida Seimitsu Kougyou\)](#)

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ICHINOSEKI CITY

# 2015 - Summer of the ILC in Ichinoseki City

By Nate Hill



Spelling out the I-L-C at a city fair

*Konnichiwa.* In the last issue of Kitakami Times I talked about the 'Ichinoseki Science Cafes' that are being held four times throughout the year. This issue I'll talk about three events that took place in Ichinoseki in August, which the ILC Promotion Division got involved in to further awareness of the ILC project.

The first of these was on August 17, when the sumo summer tour stopped in Ichinoseki and international residents in the city, the rest of Iwate Prefecture and adjacent prefectures as well, volunteered with helping out. They came to the city gym the day before to help



Wrestlers holding babies and young children in the ring

make the sumo ring, which involved assembling the base and then unloading earth and clay. The final touches such as hardening and smoothing the ring surface, and positioning the rice bales which form the boundary of the ring, were of course made solely by the sumo tour professionals.

On the day of the sumo, the ILC Promotion Division set up ILC flags in the gym lobby and supplied *uchiwa* or hand-fans, made by Iwate Prefecture and the prefecture's ILC Promotion Council, which feature an image by Rey.Hori along with information about the ILC. International residents handed them out while greeting guests, who then used them inside the gym to wave off the summer heat.

A week later on August 23, there was a fair at which organizations from across the city set up booths. The ILC Promotion Division set one up, and a handful of the city's Assistant Language Teachers (ALTs), who are also part of a newly-formed system to make Ichinoseki a more international city, helped in handing out ILC brochures and goods to people stopping by at the booth.

Local mascots from Geibikei Gorge also joined in on the



Love for power rangers crosses all boundaries



The beer festival



ILC fashion on the runway

fun and posed for photos. Geibikei Gorge is a scenic spot which researchers and PR staff from various institutes have visited in their trips up to the Kitakami candidate site.

The ALTs took part in the afternoon model runway show and showed off ILC T-shirts made by the ILC Promotion Division. On the front of the shirt are ILC letters in lowercase surrounded by *sakura* or cherry blossoms, and on the back is an outline of the Tohoku region in northern Japan, with Iwate Prefecture filled in white and the planned ILC route indicated in red.

Masataka Kudo, who works at a local printing and media company, said after visiting the ILC booth with his son: “the greeting by the ALTs was impressive, and the ILC panels were big and easy to understand. I hope my son grows up interested in the ILC,” later adding that his son had put the miniature ILC flag on his study desk at home.

Eriko Fukuchi, vice chairwoman of an international relations association in the southeast of the city, said it was great to see the smiling faces on each of the ALTs, but wondered how much conversation took place with local residents, noting that many people in Ichinoseki were not yet used to talking with people from abroad. Ms Fukuchi suggested getting junior high and high school students involved in promoting the ILC together with the ALTs, saying that if residents saw students learning English and knew that ALTs can chat in Japanese too, it

would bring more residents closer to the ILC and further international exchange as well.

Finally, the third event was on the last weekend of August, when the 18th Ichinoseki National Craft Beer Festival was held. Some 300 varieties of craft beer from across the country and also from Germany and Belgium were served up, along with tasty treats making use of local produce. Staff from the ILC Promotion Division handed out newly-designed tissue packs which feature an ILC image on the packet and a QR code which jumps to the division’s ILC website.

This year’s craft beer festival broke the existing record for number of people visiting and for total volume of beer consumed. Perhaps an ILC-themed beer can help break the record again next year!

## LEARN MORE ABOUT ICHINOSEKI

[Ichinoseki City’s ILC Promotion Division](#)

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Ichinoseki City ILC News Web

[Ichinoseki City’s ILC Facebook](#)

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Ichinoseki and the ILC

ILC Support Committee members handing out ILC fans to the public



IWATE PREFECTURE

*“Sakkora choiwayasse!”*

## A traditional Japanese festival meets the future

By Amanda Wayama

All of Iwate is coming together to bring about the ILC. This summer saw a number of events, from a huge seminar hosted by the Iwate ILC Promotion Council on July 2<sup>nd</sup>, and a number of small events and panels where local mayors gave their ideas about the project. Most exciting was the creation of an ILC team to participate in Iwate’s largest summer festival.

Every summer, Morioka City in Iwate comes alive for a 4-day drum festival extravaganza known as ‘Sansa Odori,’ or the Sansa Dance. As night descends on the city, people dressed in summer kimono and elaborate hairstyles fill the streets to watch thousands march to the beat of the drum. “Sansa-sa! Sansa-sa!” the cries fill the air with a backdrop of flutes, drums, and gongs. “Hara hara hara-se!” Spectators feast on yakisoba and beer as they enjoy the cool twilight air. “Sakkora Choiwayasse!” The festival celebrates the defeat of an evil demon who tormented the town centuries ago, and the mood feels triumphant even today.

This is the atmosphere of a traditional Japanese festival. If the ILC is realized in Iwate, then scientists and researchers from all over the world will be able to see this festival and more every year. Adventurous residents will even be able to become part of these festivals

themselves. That’s what’s wonderful about living in Japan: you get an opportunity to take part in traditions with hundreds or even thousands of years of history.

So – thousands of spectators all in one spot? What a fantastic opportunity to talk to people about the ILC project! The ILC Promotion Office of the Iwate Prefectural Government set up a team for the festival, ordering almost 1,000 plastic-fans to hand out to festival-goers on the streets. Wearing blue and purple *happi* coats emblazoned with the ILC, they marched with huge banners that said “Bring the ILC to Tohoku!” Local foreign residents involved with the ILC Support Committee marched right along with them, greeting festival-goers.

ISC Member Dean Ruetzler said, “I have participated in Sansa Odori a few times before, but nothing before matched the crowd’s reaction to the ILC. A mixture of anticipation, excitement, and hope was what I saw in their eyes. I truly believe that when all is said and done, a majority of Iwate citizens are in favor of the ILC coming to the prefecture.”

Jun Sasaki, executive director of the ILC Promotion Office, had this to say about the event. “Japanese festivals are a great time for both young and old, and

Sansa is the biggest drum parade in the world, officially recognized by Guinness. By creating an ILC team we were able to spread awareness of the ILC project to a huge amount of people. We had almost 1,000 fans that were handed out in just 10 minutes! Moreover, by inviting members of the ILC Support Committee, we're showing that it's very important to involve our foreign residents in Japanese culture and community development. It gave the local people an opportunity to interact with their foreign neighbors. I feel strongly that we are coming together as 'one world' for the ILC."

One staff member from Ichinoseki even dressed up as the concept of dark matter. Yes, dark matter. It turns out 'dark matter' was just some tall guy wearing black spandex. I'm as surprised as you are.

And there I was, covered head to toe in a traditional Sansa yukata (summer kimono) and taiko drum. Every year I've participated in the festival with a drum hoisted on my shoulders, and every year I have more and more fun. It's hot, it's exhausting, but nothing beats taking part in something that brings so much joy. Some years the International Association's put out their own teams, with foreign residents dressed up in their own cultural dress, in Japanese yukata, or even in regular shorts and t-shirts. All are welcome at this, the biggest taiko drum festival in the world. And someday, the world will be participating in Iwate's customs as well.

### Learn how to Sansa!

Once you're here, you could learn how to drum the taiko, play the flute, or dance. Dances can be learned in a week or two (this is coming from someone with zero rhythm or musical aptitude, so it could take you much less time!). This could be our ILC team in the future...



## LEARN MORE ABOUT IWATE

[Iwate Prefecture Official Homepage](#)

Search	Iwate Prefecture (English)
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[Iwate Prefecture's Facebook](#)

facebook	Rock on Iwate PR in English
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[Sansa Odori Drum Festival \(PDF\)](#)

Search	Sansa Odori
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# Economic leaders of Iwate for the ILC

By the Iwate Prefecture ILC Promotion Council



Council members meet with Commissioner Kitagawa of the Small and Medium Enterprise Agency

The ILC Promotion Council of Iwate Prefecture is working to realize the International Linear Collider in the Tohoku region of Japan with the economic leaders of Iwate at the forefront. The council was created on April 27, 2012 by the joint effort of 5 economic organizations of Iwate.

The Council was created to help create a cooperative framework for local industry, academia, and government leaders for the ILC. Members are also coming together to create an Iwate that can welcome the ILC and provide a great place to live and work for researchers. Our main goal is to build awareness and acceptance of the ILC project, as we make formal requests to the government to officially invite the project to Japan.

The Council holds seminars every year with guests from the field of particle physics. These are aimed at the general public, especially young people. In order to raise interest and establish connections to the project with local industries and businesses, the Council holds tours of accelerator research facilities such as KEK and SPring-8. Some companies in Iwate have already started to produce parts for particle accelerators or have begun joint research on accelerators.

The Council is working with the Iwate Prefectural government and the ILC Promotion Council of Tohoku to make formal requests to related national government ministries, local members of national parliament, and the federation of political parties, urging their support of the ILC. We make formal requests more than 10 times a year, so that the will and voices of the people will directly reach the ears of the national government.

Additionally, the Council has a Japanese and English homepage to help distribute information related to the ILC. We help put together tours of the Kitakami site, plan academic seminars, and create posters, banners, and other PR material for the ILC.



Flags and various promotional materials



\*Japanese language

We need the backing of the people of Japan in order to realize the ILC in Tohoku. We are aiming to increase our activities as a council to spread acceptance of the ILC to as many people as possible.

We look forward to your support and understanding.



The Iwate ILC Promotion Council's homepage (available in English and Japanese)

## LEARN MORE ABOUT THE ILC COUNCIL

[Iwate Prefecture ILC Promotion Council](http://www.iwate-ilc.jp/)

Search

ILC Iwate Council

## The ILC Promotion Council of Iwate Prefecture

# At a Glance

### Objectives

- (1) Deepen understanding of the ILC and its research, and investigate what municipal services and academic environments will be necessary to attract international research organizations to Tohoku and Iwate
- (2) Develop concrete strategies for development around the ILC to revitalize the economy of Tohoku and Iwate

### Members (as of March 31, 2015)

435 groups, 82 individuals (517 in total)

Members range from Iwate Prefecture to Miyagi Prefecture, Tokyo, Kanagawa Prefecture, and people from other regions of Japan.

### Inquiries

Iwate Prefecture ILC Promotion Council

Attached to the Morioka Chamber of Commerce and Industry

(020-0875) 14-12 Shimizu-cho, Morioka, Iwate, JAPAN

TEL: +81 019-624-5880 FAX: +81 019-654-1588

URL: <http://www.iwate-ilc.jp/eng/>

\*Phone inquiries in Japanese, please.

ILC Symposium in Iwate | July 2, 2015



## IN THE NEWS

September  
18<sup>th</sup>

### [Assistant language teachers gather in Ichinoseki to discuss the ILC](#)

**Iwate Nippo:** 10 ALTs (foreign teachers) met to discuss a more international Ichinoseki and register to the list of ILC supporters. Among the topics was education, healthcare, and public transportation.

September  
23<sup>rd</sup>

### [CHIDA PRECISION PRODUCTS: New division with the ILC in mind](#)

**Tanko Nichinichi:** Chida Precision Products of Maesawa, Oshu will expand its Maesawa Factory and open a precision washing department within this fiscal year. The additional building will be finished by mid-November. President Chida: "We want to expand our horizons with this new division. When the ILC dream comes true, I want to connect that with what we do here."

September  
24<sup>th</sup>

### [International cooperation for the ILC - Diet members to visit USA](#)

**Iwate Nippo:** The "Federation of Diet Members to Promote the Construction of an International Laboratory for the Linear Collider" (Takeo Kawamura) is planning to visit the United States in January of next year. ... The federation will start work in earnest to start the US-Japan congressional caucus at mainly the Hudson Institute in Washington DC.

October  
17<sup>th</sup>

### [AAA Symposium 2015 in Oshu, Tohoku](#)

**Upcoming event!** Saturday, Oct. 17, 2015 – 13:30-16:30 at Z Hall, Oshu City  
Hear about recent developments concerning the ILC, the cutting edge research that the ILC is for, and about regional development planning for this international project. \*Reservation required; information can be found at the link.

## CONTRIBUTORS

### **Anna Thomas, ILC Internationalization Coordinator, Oshu City**

Anna's been in Iwate since May 2010. Here are some of the things she enjoys about life here: squeaky snow during snowshoe walks, weird antisocial squirrels with long ears, the singing baked yam truck, local superheroes, affordable national health care, tip-free excellent customer service, and an environment so safe people leave the keys in their cars. Also sake.



### **Nathan Hill, ILC Internationalization Coordinator, Ichinoseki City**

Nathan has lived in Ichinoseki since 2013, working for two years as an English teacher before beginning work in the city's ILC Promotion Division in 2015. From Perth in Western Australia, where he worked at the Consulate-General of Japan, he likes early morning jogs through the countryside, photography, the shinkansen and other trains.



### **Amanda Wayama, International Communications Officer, Iwate Prefecture**

Amanda splits her time between public relations and ILC work, and is striving to spread the story of Iwate to the rest of the world. In Iwate since 2009, Amanda is just about used to the cold Iwate winters. She likes spending her free time knitting (again, cold winters) and sampling craft beer from the region.



## THE KITAKAMI TIMES : Issue #2

Produced by the ILC Promotion Office of the Iwate Prefectural Government

TEL: +81 019-629-5217

E-mail: AB0009@pref.iwate.jp

with Oshu City, Ichinoseki City, and the ILC Support Committee

We're working on a web version of the Kitakami Times that should be up shortly. Our next issue is scheduled for November.

Please let us know if you have any comments or suggestions!