IALA COUNCIL
56th Session

December 9-13, 2013
Goa
India

Agenda item 13 – INTERNATIONAL

13.3 FERNS

13.3.1 Documents to note

13.3.1 Report of FERNS Council 22

Executive Summary

The 22sd session of the FERNS Council was held in Jeju, the Republic of Korea, during the period 14 – 18 October, 2013. The Chairman was Mr. Kim Min-cheol, Director of Maritime Safety Facilities Division, Busan Regional Maritime Affairs and Port Administration, Ministry of Oceans and Fisheries. Representatives of China, Japan, Korea and Russia as well as Observers from IALA and Norway participated in the session.

The meeting allowed each participating country to give the situation of the functioning of the Loan-C/Chayka chains in the region and on the off-air schedules for next year, as well as the technical and operational matters concerning them. It was also the occasion to discuss regional cooperation on radionavigation and to inform Council Members on projects and realizations implemented in each of the countries. Special emphasis was made on the Northern Sea Route and its needs for a safe navigation.

During the meeting, Japan confirmed the decision to terminate all Loran-C stations by February 2015 and gave a precise schedule of the termination of each stations. For Russia and China, they informed the Council that they continue to modernize their existing Loran-C and Chayka stations, whilst Korea is developing a complete coverage of its waters with e-Loran stations which should be completed by 2015. Furthermore, Russia and Korea agreed the principle to create a new cooperative chain to compensate the closure of the Japanese chains, and invited China to join the project.

In this context, the Council continued the discussions on the revision of the FERNS Agreement to enlarge the scope of the Agreement to all sort of radionavigation and to take into account the decision of Japan to withdraw from the Agreement by 2015.

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REPORT
on
The twenty second Session of the Council of the Far East Radionavigation Service (FERNS)

1. Opening of the Session

1.1 The twenty second session of the Council (FERNS 22) was held in the Haevichi Hotel, Jeju, the R epublic of Korea, during the period 14 – 18October, 2013 (including one day of Technical Workin g Group meeting). The Chairman, Mr. Kim Min-cheol, Director of Maritime Safety Facilities Divi sion, Busan Regional Maritime Affairs and PortAdministration, Ministry of Oceans and Fisheries, opened the meeting and welcomed the participants. He then gave lecture of a welcome address fr omMr. Kim Woo-cheol, Director of Maritime Safety Facilities Division, Ministry of Ocean and Fi sheries, underlining the role plaid by the FERNS Council not only for Loran and Chayka but also for the benefit of maritime transportation. With the implementation of e-Navigation and the use of e-Loran as back-up of GNSS, the importance of FERNS is there and this 22nd session is a new op portunity of exchange of information and technology. He also wished all participants to have a go od time in Jeju.

1.2 At the invitation of the Chairman each participant was introduced to the meeting. Representatives of the following Members and Observers participated in the session:

Members:

The People's Republic of China;
Japan;
The Republic of Korea;
The Russian Federation.

Observers:

IALA;

Norway.

The Representative of Russia, Mr.VasilyRedkozubov, said that it was a great honour for him to greed all participants in the name of the Ministry of Industry and Trade of The Russian Federation,in the name of the Internavigation RTC, and personallyin his own name. He added that he was instructed to make apologies on behalf of the Deputy Director of the Department of Radioelectronic Industry of the Ministry of Industry and Trade of The Russian Federation, Mr.Oleg Bryanda, and on behalf of the Director General of the Internavigation RTC, Mr.Victor Tsarev, for not being present due to official obligations.

The Russian delegation was also instructed to extend its greetings to the participants on behalf of the Director of Department of Radioelectronic Industry of the Ministry of Industry and Trade of the Russian Federation, Mr.Alexander Yakunin, and to read his address in which he stressed

the high value of the FERNS meetings. He recalled the efforts made by the Russian Federation during the last years to modernize the Chayka stations and also to improve the performance of the GNSS. Talks are engaged with Korea in view of creating a new cooperative chain between the two countries. He stressed the fact that FERNS is the only international forum where to make such agreementbetween neighbouring countries and underlined the importance of the FERNS Agreement.

1.3 A full list of participants is given in Annex 1.

2. Approval of the Agenda

2.1 Thedraft agendawas accepted for the conduct of the meeting without amendment. The agenda and the list of documents submitted for discussion are given at Annexes 2 and 3, respectively. Detailing the work programme, the Chairman informed the participants that they would have the opportunity to participate to a technical tour on Thursday around Jeju Island. It was agreed to slightly amend the agenda and to receive the report of the Technical Working Group (TWG), chaired byProf.Gug, on Friday morning instead of at the beginning of the Council session.

3. Report of the 8th TWG Meeting

3.1 The Chairman of the TWG, Prof.Dr.Seung-giGug, reported that the Group received and discussed several presentations on technical matters, not only on Loran-C and Chayka but also on the new generation of those systems and other radionavigation systems and equipment.

3.2 The Chairman of the Technical Working Group also proposed that the date and venue of the 8th session of the FERNS TWG would be the eve of the first day of the 23rdsession in China. If further discussions are needed on the matters concerned, they should be conducted by correspondence through e-mails or fax before the 9th session. There was no objection to the proposal.

4. Presentation of Reports by Each Country on the Loran-C/Chayka Programme

4.1 China reported **(CS 22/4/1)** on the operation, maintenance, technical update, and personnel training about Chinese Loran-C system.

It was noted that, during the period from August 2012 to July 2013, the signal availability met the specified requirements, taking into account the quarterly planned 96-hour off-air maintenance mechanism which would continue during the 2013-2014 period.

4.2 Japan presented a report **(CS 22/4/2-1)** on the operational status of the North West Pacific Chain (D Chain) showing the availability of each baseline, of each transmitting station and of triad from August 2012 to July 2013. The figures are 99.21 % and above including scheduled off-air period, except for the Niijima master station which was off-air since 19 June 2012 due to

antenna failure after a huge typhoon. There is no plan to restart the Niijima station, which is due to terminate in 2014.

4.3 Japan presented the schedule **(CS 22/4/2-2)** planned for the termination of the Japanese Loran-C stations: Tokatibuto station February 2013, Niijima station February 2014 and Gesashi station February 2015. Japan added that it needs to be withdrawn from the Agreement by that date as it will then not be in a position to fulfil its obligations.

4.4. The status of Loran-C stations of the Korean Chain (GRI 9930) was given in document (**CS 22/4/3)**. Information on signal availability of each station and baseline of the chain was also provided,including for the Ussurijsk station, which has started to operate properly from June 27, 2013.

4.5 Russia gave the results **(CS 22/4/4)** of operational analysis of the Russian Stations in Chains B and C. The availability was 0.9999 for chain B and 100% for chain C stations for the period October 2012 – October 2013, the maintenance time for each station with user warning being not taken into account.

4.6 The observer from Norway in her presentation **(CS 21/4/5-1)** provided information on the four Loran-C stations established in Norway. It was pointed out that the Norwegian Government has decided to close down the 4 Norwegian Loran C stations from 1st January 2016 because of the number of users, the role of GNSS and the maintenance of the stations and their equipment.After the closure of the Loran stations, Norway will be dependent of the satellite systems, which need to be robust, effective, safe and secure taking into account the economic growth, the resources (fisheries, gas, oil, other natural resources) and the new maritime routes in the Arctic region. There is also a need for more infrastructures to respond to the demand on surveillance, communication, data exchange,information and warning systems, including virtual aids to navigation.

Norway also provided information on the role of the Norwegian Coastal Administration. Responding to a question from Korea, Norway confirmed that a good coverage of DGNSS in the Arctic region is a challenge, because the difficulty to install shore infrastructure and the problems encountered with satellite based augmentation systems. China added that Beidou is still experimental and not usable for the Polar Regions at this stage. The system is expected to be fully operational and global in 2020 with 35 satellites.

Korea expressed the view that the vulnerability of the satellite systems remains and no back-up is planned for the Arctic. Korea had great interest regarding the Arctic routes and is of the opinion that a PNT back-up system is necessary to cover the region for which e-Loran/e-Chaika is a candidate.

4.7 The IALA observer made a presentation**(CS 22/4/6)** on the maintopics under development within the Association, in particular:

- the involvement of IALA in the concept defined by IMO on “Sustainable Maritime T ransport”, which includes VTS and the “Accident Zero Campaign”, future traffic mon itoring/management, e-Navigation;
- training and capacity building through the IALA World-Wide Academy; and
- the discussions on the project of a new status for the Association to change from NG O to IGO.

5 Operational matters for FERNS co-operating chains

5.1Scheduled Off-air for 2014

Korea collated**(CS 22/5/1, CS 22/5/2-1, CS 22/5/3-1 and CS 22/5/4-1)** the off-air schedules of all the FERNS chains.All Members are requested to check the list and to report to China for any modification before the 1st of December 2013. Then China is invited to circulate the final list to all Members countries no later than 31 December 2013.

5.2 Other operational matters

5.2.1 Following its decision to terminate Niijima Loran-C Station at 0000UTC on February 1, 2014, the Japanese Government had notified this intention to the host nation of the Council based on the Section 5 of Article 4 of the FERNS Agreement. Therefore, Japan proposed**(CS22/5/2-2)**the following amendments to the Annex attached to the FERNS Agreement.

1 Action based on the Section 3 of Article 3 of the FERNS Agreement: to amend the Table 1 of the Annex attached to the FERNS Agreement, as follows:

(1) To delete the column concerning Niijima Loran-C Station.

(2) To delete the line concerning D8930.

2 Action based on the Section 5 of Article 3 of the FERNS Agreement: to amend the Figure 4.1, 4.4, 4.5, 4.6 and 4.7 and Table 4.1 in Chapter 4 of the FERNS Operating Guidelines, as follows:

(1) To delete Figure 4.6 and 4.7

(2) To delete the parts concerning Niijima Loran-C Station and D-chain in Figures 4.1, 4.4 and 4.5 and Table 4.1.

The amendments shall enter into force at 0000UTC on February 1, 2014.

Korea explained that the title of the document presented by Japan is not correct. It should read "Amendments of the FERNS Operating Guidelines" as there is no annex to the FERNS Agreement. With that correction, Korea was of the opinion that the amendments can be accepted by the Council. Japan accepted the correction and the amendments were therefore unanimously agreed.

5.2.2 Korea indicated**(CS 22/5/3-2)** that the signal of the Ussurijsk station, the secondary(Z) station of Korea chain(GRI 9930), has been received by their monitor stations from June 26, 2013. It is in accordance with conclusion of the 21st FERNS Council meeting in Russia. Then Korea gave the results of the measuresof the Ussurijsk signal at Gonjeolgot monitor station of Korea chain from June 26, 2013 to September 30, 2013.

5.2.3 Due to a reorganization within its Government, Korea proposed (**CS 22/5/3-3)** an amendmentto the FERNS Operating Guidelines in accordance with article 7.2(d) of the FERNS Agreement. The amendment was unanimously agreed.

5.2.4 Following the entry into operation of the Ussurijskstation within the joint Korean - Russian - Japanese chain, Russia reported **(CS 22/5/4-2)** on the investigation made on the value of

different parameters and on problemsof the working organization between the Ussurijsk station and the other stations in the chain. It was proposed to:

- Use Internet as the data channel between stations
- Use an agreed data exchange code digital table (as provided) to exchange information
- Install an automated monitor in the Ussurijsk station's work area.
- Follow Resolutions 6 and 3 of the FERNS Operating Guidelinesagreed at the 11th session of the FERNS Council for controlling the chain stations.

Responding to Korea proposing the synchronization of all stations, Russia recalled that the Council already agreed the principle of the synchronization. What it was new in the Russian proposal was the mean to do it, and it is proposed to use Internet.Korea then explained that Japan and Korea had such experience and proposed to share that experience with the other FERNS Members. Russia thanked Korea and accepted the proposal, wishing to work rapidly on the subject.

5.2.5 Due to a reorganization, from FSUE Internavigation RTC to JSC Internavigatin RTC and fromLong range Navigation Centre to Management and Control Point, Russia proposed (**CS 22/5/4-3)** an amendmentto the FERNS Operating Guidelines. The amendment was unanimously agreed.

5.2.6 China indicated a change of the name of a Chinese organization in the FERNS Operating Guidelines and suggested to amend it. Russia explained that the normal procedure would be to make such proposal of amendment by a written submission sent to the Council Members prior to the meeting. However, after discussions, it was agreed that such minor change could be done directly, and the Chairman requested the Councilors to review the Operating Guidelines and to propose any modifications resulting from minor changes, such as the correct name of organization, byFriday morning.

6. Technical matters for FERNS cooperating chains

6.1 China made a presentation **(CS 22/6/0)** on LORAN-C/GNSS/INS Integrated Navigation Technology. It was explained that GNSS cannot be completely reliable to provide PNT because of the vulnerability of GNSS signal. Therefore, it is necessary to take Loran-C as a backup means of PNT.Commonly, the GNSS and the Loran-C are used independently. Once the GNSS is not available because of a GNSS receiver failure or disturbance, Loran-C is used only. If the pseudo-range of GNSS, Loran-C data and INS (Inertial Navigation System) data can be processed together by the method of data fusion, the performance of this integrated navigation system will improve on different aspects such as coverage area, anti-jamming, information reliability and others.

Responding to a question from Korea, China specified that the system cannot receive e-Loran signal yet.

6.2 At the 21st session, Russia proposed to build a new Russia – Korea Chain comprising Ussurijsk as a master, Alexandrovsk and Pohang as secondary stations. Korea considered the proposal

positively and expressed **(CS 22/6/1-1)** its suggestion to add Gwandgiu to the new cooperative chain. It would also welcome any offer from China to join the cooperative chain. In such case, Korea would consider the cooperative means with new transmitting stations actively.

Korea also noted that, if all transmitting stations send UTC synchronizedsignals, users will be in a position to use the all-in-view mode, irrespective of the chain to which the station is part of.

Commenting on the offer from Korea, China explained that an enquiry confirmed that it remains very few users of Loran C in China. Therefore, the policy is to maintain the existing equipment but not to create new stations. Efforts are today focused on the achievement of the implementation of the Beidou satellites system.

6.3 Following the entry into operation of the Ussurijsk station since June 27, 2013, Korea proposed **(CS 22/6/1-2)** to build a communication network via Internet of controlstations between Korea and Russia to improve reliability and operation of the Loran-C/Chayka chain between the two countries, instead of using fax and e-mails.

Russia immediately agreed on the proposal and requested Korea to send the software and the protocol for testing their compatibility. Both Parties agreed to exchange the information by e-mail as soon as possible.

6.4 Russia recalled **(CS 22/6/2)** that, at the 21st session of the FERNS Council, the Russian delegation presented a proposal for the development of joint radionavigation chains in the Far East, taking into account Japan's decision to close the stations in Niijima and Gesashi.The proposal was to create a new chain with Ussurijsk station as a master and Alexandrovsk-Sakhalinsky and Pohang as secondaries.

Having received the support of Korea, Russia proposed to discuss the list of measures which would be necessary to ensure the functioning of the new chain,

- Carrying out experimental chain work sessions.
- Installation GRI=59,80 for Russian-Korean chain.
- Addition to the Operating Guidelines, Table 1 (Configuration of FERNS Chains), of the information about the new Russian-Korean chain.
- Organization of the information channel between the stations.
- Solving problems revealed by the results of the experimental work.
- Resolving internal organizational matters in the work of the stations in the new chain .
- Launching the stations of the new chain into continuous operation.

Korea thanked Russia for the proposal and agreed with it, suggesting to add a fourth station, Gwandgiu, as indicated in paragraph 6.2 above. Russia welcomed the idea, but expressed the opinion that it would be more efficient to start the experiment with only three stations, and to add Gwandgiu later if the tests are successful.

Further discussions through bilateral meetings tookplace between the Russian delegation and the Korean delegation took place and the two delegations agreed to:

- Setting up the practical affairs through contact points between the Ministry of Industry and Tr ade in Russia and Ministry of Oceans and Fisheries in Korea
    - Russia: Mr. VasilyRedkozubov, the Representative from Ministry of Industry and Trade
    - Korea: Mr. Young-tae Lee, Ministry of Oceans and Fisheries
    - Coordinator: Professor Dr. Seung-giGug, Korea Maritime and Ocean Univers ity
- Mutual visit and further meetings to check the site situations of both countries and to submit t echnical operation factors for the chain(GRI, Coding Delay, Operating Time table, etc.)
- Making MOU in the Ministry Level

7. Coordination of other radio navigation services in the Far East

7.1 China presented **(CS 22/7/01)** the programme of implementation of AIS shore stations. Since 2003, 143 AIS stations were built along the coasts and 324 on inland waterways. One National AIS Management Center and 3AIS Management Centers in 3 sea areas monitor the data received and sent.

The benefits from the implementation of the AIS network include ship supervision, traffic organization, provision of navigational services to ships, promulgation of navigational information, and other such as support for SAR or anti-smuggling operations.

Responding to a question from Korea, China explained that fishing vessels at sea have to carry class B AIS, but not on inland waters. The commercial vessels above 500 GT on inland waterways are equipped step by step with AIS, partly with the financial support of the Government. Commercial vessels under 500 GT have no such obligation.

7.2 China gave an update**(CS 22/7/02)** on the VTS network. As of January 2013, China MSA has established 44 VTS centers along the coast and the main routes of the Yangtze River, with 187 radar stations in full operation.

The system has greatly contributed to safety and efficiency of navigation by providing dynamic supervision and management of traffic, information service, traffic organization, navigation support, cooperation with other departments and support for joint actions.

7.3 Korea gave information**(CS 22/7/1)** on the way the Ministry of Oceans and Fisheries is promoting the use of Internet, DMB broadcast and cell phone data transmission network to provide DGPS information to a large variety of users. Regarding Internet and cell phone, the service was launched in August 2011 and the applications are now under development. Concerning the DMB mode, broadcasting tests are in operation in the metropolitan area.

Responding to several questions, Korea explained that the project includes the development of diffusion of marine information as well as map corrections.

7.4 Korea gave details**(CS 22/7/2)** on the implementation of AIS AtoN, made in accordance with Recommendation A.126 and Guidelines 1026 of IALA. Today 365 AtoN are equipped with AIS which provides information on the status of the aids and on weather and hydrologic conditions to mariners as well as to the AtoN services in charge of maintenance.

7.5 Russia described **(CS 22/7/3)** thestatus and the future development of the Russian Maritime Differential Subsystemin the Far East. At present it includes 17 reference stations (RS) of the Maritime Differential Subsystem (MDSS) of the Global Navigation Satellite System, 5 Regional Control Centers (RCC) and a Monitoring Center of the MDSS. 13 RS are in the Far East. It is programmed an increase of MDSS coverage in the Far Eastern waters through the deployment of new reference stations and with their integration into the GLONASS ground control contour.

Concluding that the quality of MDSS stations operation depends on the optimal choice of frequency (distance separation) with other radio-electronic facilities,the observer from IALA recalled that there is a list of the frequencies used by the different DGNSS stations worldwide on the IALA Website, and that it is important that each provider update the list. Russia responded that the information will be passed to the Ministry of Defense, which is in charge of the implementation and the maintenance of the stations.

7.6 Russia reported on a working meeting, held in England in June 2013, between representatives from the Internavigation RTC and the General Lighthouse Authorities of the United Kingdom and Ireland. As the results of the visit, it was recognized:

- The necessity to complete the space navigation systems with the independent autonomou s radionavigation system eLoran or eChayka;
- The usefulness for Russia and UK to collaborate for improving the application of radiona vigation stations on long waveslength eLoran and eChayka
- The necessary cooperation for the development and standardization of eLoran and eChay ka
- The advantage of joint-use of eLoran and eChayka stations through joint navigation chai ns to increase the total area of navigation covered without having to bear the cost of cons truction of additional stations.

Russia concluded by expressing its deep appreciation and thanks to the General Lighthouse Authorities of the United Kingdom and Ireland for having organized the visit of Russian specialists to the United Kingdom.

Korea underlined the example given of a bilateral fruitful collaboration and added that Korea will soon sign a MoU with UK on the development of eLoran. It was asked if Russia would be ready to join the two countries to build an eLoran system. Russia answered that, for the time being, Russia is not ready to build new stations,but only to work with the existing equipement and infrastructure. It has not yet implemented eChayka but has started to develop the necessary equipment.

Korea informed Russia that the IALA e-Navigation Committee has started to develop standards for eLoran and encouraged Russia to participate to the work. In response, Russia expressed the wish to do so.

8Draft Amendments to the FERNS Agreement

8.1 Russia recalled **(CS 22/8/1)** that at the 21st FERNS Council meeting it was agreed that the Russian delegation would act as the coordinator in exchanging opinions between delegations on the issue of amendment to the FERNS Agreement. Therefore, the Russian delegation sent a letter to the three other Parties on the 30th of January, 2013, requesting them to submit their proposed amendments tothe draft Agreement proposed by the Russian party in accordance with the procedure of amending the Agreement. A response from Japan was received in March confirming the decision to withdraw from the agreement, and the wish to join FERNS as an observer under the article 6 section 2 of the Agreement as the need arises. New letters were again sent to China and Korea, including a letter from June 26 containing adraft amended Agreement, but no answer was received from both Parties so far. Russia concluded by proposing two solutions, either to approve the draft Agreement as proposed by the Russian delegation in its letter of June26, 2013, orto leave the present Agreement unamended.

8.2 The Chairman proposed to ask each delegation for a general comment.

China explained that they have carefully checked the draft text produced by the Council at its 21st session and the Russian proposal and, apart minor amendments, there is a more important modification on the article 6, paragraph 3 where all the clause regarding observers were deleted. Russia responded that the deletion was introduced not by Russia but by the Council at its last session, and that Russia has no objection to maintain the text. Questioned by the Chairman, Japan and Korea also agreed to maintain the text as it was before deletion.

Japan declared that his country supports the second proposal made by Russia in its document CS 22/8/1, i.e. to keep the text unamended up to the effective withdrawal of Japan from the Agreement.

Korea explained that the revision of the Agreement had become a necessity after twenty years of existence. And even with the withdrawal of Japan, amendments will have to be done for the three remaining Parties. At this stage, China, Korea and Russia agreed on the text proposed by Russia in its letter dated of June 26, 2013, with the maintaining of the whole paragraph 6.3.

Russia recalled that it was tasked by Council 21 to act as coordinator and to propose a final text to this Council meeting. Despite the lack of participation, a final draft was prepared and submitted to this Council more than the 90 days before the Council session, required by the article 10 of the Agreement. As the three countries agreed with the amendments, including to keep paragraph 6.3 in its integrity, Russia proposed that the text be notified to the Parties through the diplomatic channel by China, as the host of the next Council meeting.

8.3 Following the proposal from Russia, Japan reiterated its position that there is no need to amend the Agreement, but if the Parties want to amend the Agreement after Japan had withdrawn, Japan had no objection. However, the Japanese delegation had no mandate to approve the proposed amendments at this session. Furthermore, it confirmed that Japan wants to withdraw from the Agreement the 1st of February 2015, which means that the notification of its intention will be notified to the three other Parties through diplomatic channel not later than the 1st of February 2014.

8.4 After a long discussion between the Councilors, regarding the procedure of amendments, the fact that the withdrawal of Japan will necessitate to also amend the Agreement to take into account the new composition, and the question of dates and places of the next Council meetings, the Chairman proposed to the Council Members to give their opinion onthe 6 following points.

1 – There is a need to revise the Agreement. China, Korea and Russia agreed. Japan also agreed if the revision takes place after the withdrawal of Japan.

2 – Appreciation should be addressed to Russia for the work done. All Councilors agreed.

3 – The revision procedure as indicated in Article 10.2 will be handled by China. China and Korea agreed; Japan can agreed if the amendment will not enter into force before its withdrawal; Russia explained that China should apply the notification of the Article 10.3, as the text is now agreed by the Council and can be notified as it is to the Parties by the diplomatic channel. Japan recalled that it cannot formally accept the text as it is proposed at this session.

4 – After having received comments by other Parties (on the document TWG08/09/02, with integral paragraph 6.3), China shall send an agreed document at least 90 days before the next Council meeting to all Council Members. All Councilors agreed.

5 – The text will be formally accepted at the next Council meeting and then notified to the Parties through the diplomatic channel with an entry into force after Japan has withdrawn from the Agreement. All Councilors agreed.

6 –At this session, Japan had clearly demonstrated its intention to withdraw from the Agreement. All Councilors agreed.

The Chairman noted the 6 points agreed and proposed that the text contained in the Russian proposal, with the modification agreed regarding the observer status, was transferred to China.

9. Other business

9.1 Russia made a presentation**(CS21/9/1)** onthe current stage of developmentof the satellite navigation equipment prepared by the Head of the Council of Chief Designers of the Manufacturers of Navigation Equipment. He described the structure of new generated

navigation and information system, and its different applications in all sorts of activities and transports.

9.2 Russia explained**(CS 21/9/2)**that on February 19, 2013 the President of the Russian Federation approved a strategy for the development of the Arctic zone of the Russian Federation for the period of up to 2020. This includes the Northern Sea Route which becomes more and more popular. To minimize the risks, in particular the risk of environmental disaster, there is a need of an alternative independent autonomous navigation system in addition to the GNSS. The best candidate for such a system is e-Loran/e-Chayka.

It was pointed out that nowadays radionavigation maintenance of the Northern Sea Route is insufficient and that additional radionavigation stations are needed all along the whole Northern Sea Route. Noting that a lot of countries are interested in a safe radionavigation support on the Northern Sea Route, Russia recommended considering mutually beneficial international projects to provide such radionavigation aids. It also invitedthe FERNS Parties to make presentations at the next session on the ways they can cooperate on those matters.

10. Date and venue of the 23rdSession

10.1 At the invitation of the People's Republic of Chinait was agreed that the 23rdsession of the Council will be convened in Chinain October2014. China will determine the precise venue for the meeting and will inform members of FERNS not later than May 31st, 2014.

11. Closing of the session

11.1 The Council reviewed the draft report of the 22ndsession and adopted it with amendments. The final report is given in Document **CS 22/11/1**.

11.2 The Council expressed its great appreciation to the Republic of Korea, the Ministry of Oceans and Fisheries, the Maritime Safety Facilities Division for the excellent arrangements made for the meeting, the hospitality that had been shown to all participants and the very interesting visits that were undertaken. A special thanks was addressed toMr. Kim Min-cheol, Director of Maritime Safety Facilities Division, Busan Regional Maritime Affairs and PortAdministration, Ministry of Oceans and Fisheries, for having chaired the meeting with great competence and diligence.

11.3 The Chairman extended his appreciation to all the delegates for the hard work, mutual understanding and co-operation that has contributed to the success of FERNS in general and to the 22ndsession of the Council in particular.

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Annex 1

THE 22nd SESSION OF THE COUNCIL OF THE FAR EAST RADIONAVIGATION SERVICE (FERNS)

LIST OF PARTICIPANTS

Member countries		
China Maritime Safety Administration Division of Aids to Navigation China Electornics Technology Group Coporation	 1. Ms. Zeng Hui 2. Ms. Ma Min 3. WANG Rui 4. Fan Jianwen	 Director Section Chief Senior Engineer Senior Engineer
Japan Japan Coast Guard Marine Traffic Department	KAZUYUKI TANAKA	Deputy Director
Korea Ministry of Oceans and Fisheries Ministry of Oceans and Fisheries Marime Safety Facilities Division Korean Maritime University	1. Kim Min-cheol 2. Lee Young-tae 3. Gug Seung-gi	Director Deputy Director Professor
Russia The Internavigation Research and Technical Centre, IRTC	1. Vasily REDKOZUBOV 2. Ms. Margarita AFANASYEVA	Deputy Director General Leading expert
Technical Working Group		
Republic of Korea Korea Maritime University	Gug Seung-gi	Dean of R&D Business Foundation
Observers		
International Association of Marine Aids to Navigation and Lighthouse Authorities	1. Mr. Jean-charles Leclair 2. Mr. Michael Card	WWA dean Deputy Secretary General
Norway Ministry of Fisheries and Coastal Affairs Maritime Safety Department Norwegian Coastal Administration	1. Ms. Selvig Kirsten Ullbæk 2. Kleppe, Bjørnar	Dirctor General Adviser

Annex 2

	THE 22nd SESSION OF THE COUNCIL OF THE FAR EAST RADIONAVIGATION SERVICE (FERNS)

AGENDA

1. Report of the 8th TWG Meeting
2. Opening the session
3. Adoption of the agenda
4. Presentation of reports by each country on the Loran-C/Chayka programme
5. Operational matters for FERNS cooperating chains
   Scheduled off-air for 2013
   Other operational matters
6. Technical matters for FERNS cooperating chains
7. Coordination of other radionavigation services in the Far East
8. Discussion of Amendments to the Agreement
9. Other business
10. Date and venue of the 23rd session
11. Closing the session

Annexe 3

THE 2nd SESSION OF THE COUNCIL
OF THE FAR EAST RADIONAVIGATION SERVICE
(FERNS)

1.1

LIST OF DOCUMENTS

Doc. No.		Description	Contributor
CS22/1		1.2 **Report of the 8th TWG Meeting**	**TWG**
CS22/2		**1.3 Opening the 22nd FERNS Council session**	
	1	Welcoming speech on behalf of the Deputy Ministry of Oceans and Fisheries of Republic of Korea	**Korea**
	2	List of participants	**Korea**
	3	Documents list	**Korea**
	3-1	Documents list(20131016)	**Korea**
	4	Program of the 22st FERNS Council session	**Korea**
CS22/3		**1.4 Agenda**	
CS22/4		**1.5 Presentation of reports by each country on the LORAN-C/ Chayka programs**	
	1	Operational Status of China Loran-C Chains in 2013	**China**
	2-1	JCG Operational situation of D chain(2012-2013)	**Japan**
	2-2	Terminate schedule of Japanese Loran-C Station(2013)	**Japan**
	3	The Operation Status of Korea Loran-C Chain	**Korea**
	4	The results of operational analysis of the Russian stations in chains B and C	**Russia**
	5-1	FERNS 22 Council-3 - Norway observers report	**Norway**
	5-2	Norway observer report 2nd part	**Norway**
	6	FERNS 2013-10 mdc v3	**IALA**
CS22/5		**Operational matters for FERNS cooperating chains**	
	1	China Scheduled Off-air in 2014	**China**
	2-1	JCG Scheduled off-air in 2014	**Japan**
	2-2	Amendments of the Annex attached to the FERNS Agreement(Niijima)	**Japan**
	3-1	Scheduled off-air for 2014	**Korea**
	3-2	Ussuriisk Chayka Station Measurement-Analysis Data on	**Korea**
	3-3	Revision for FERNS Operating Guideline	**Korea**
	4-1	Scheduled off-air in 2014	**Russia**
	4-2	K-R-J Chain	**Russia**
	4-3	Amendments in the FERNS OPERATING GUIDELINES	**Russia**
CS22/6		**Technical matters for FERNS cooperating chains**	
	0	LORAN-C_GNSS_INS Integrated Navigation Technology	**China**
	1-1	Proposal For Loran-C Cooperative Chain In For East Region	**Korea**

	1-2	A proposal to build a communication network of control station between Korea and Russia	**Korea**
	2	R-K Chain	**Russia**
CS22/7		**Coordination of other radionavigation services in the Far East**	
	0-1	Construction of AIS System in China	**China**
	0-2	Construction of VTS System in China	**China**
	1	DGPS service diversification	**Korea**
	2	Status of AtoN AIS	**Korea**
	3	Status and Future Development of the Russian Maritime Differential Subsystem	**Russia**
	4	Working meeting between representatives from RF and UK	**Russia**
CS22/8		**Discussion of Amendments to the Agreement**	
	1	Amendments to the Agreement	**Russia**
CS22/9		**Other Business**	
	1	NAVIS Design Bureau 2013	**Russia**
	2	The Northern Sea Route	**Russia**
CS22/10		**Date and Venue of 23rd Session**	
	1	Date and Venue of the 23rd Session	**China**
CS22/11		**Final Report**	
	1	Final Report	**IALA**