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국제 학술지에 발표된 연구 논문에서 동해의 표기 현황

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Status of Naming the East Sea in International Scientific Journals

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Abstract : We have named the sea surrounded by the Korean Peninsula, Primorye of Russia, and Japanese Islands as the East Sea. Historically this region has been variously named the East Sea, Chosun Sea, and, more recently, Japan Sea and Sea of Japan. Since the scientific research papers can play important roles on the naming the sea, the status of naming the East Sea in international scientific journals was investigated. Among 472 papers in 46 international journals that we assessed, Japan Sea (or Sea of Japan) was used in 322 papers (68.2%), East Sea was used in 21 papers (4.4%), and parallel usage of East Sea and Japan Sea accounted for 27.3% (129 papers). In all scientific papers before the early 1980s, East Sea was not used. Since the first parallel usage of East Sea and Japan Sea in 1985, these designations has been increasingly used. After 2004, the parallel usage has replaced the single designation of Japan Sea.

Key words : East Sea, Japan Sea, status of naming

1. 서 론

한반도와 러시아 연해주 및 일본 열도에 둘러싸인 약 1백만 km^{2}의 바다를 우리는 East Sea, 동해라고 불러오고 있다. 역사적으로 볼 때 이 바다의 이름은 동해, 일본해, 조선해 등이 사용되어 왔으며, 최근 이 바다의 명칭이 Japan Sea 혹은 Sea of Japan 즉, 일본해로 통용되고 있다. 일본해라는 명칭은 1602년 Ricci의 곤여만국전도에 최초로 등장하였으며, 1787년 La Pérouse가 최초의 과학적인 탐사를 통해 얻은 결과를 바탕으로 1797년에 지도를 출판하면서 널리 사용되어지기 시작하였다(한 1989). 이러한 관점에서 바다에 대한 과학적인 연구 결과 발표에 바다의 명칭을 어떻게 사용하느냐 하는 것은 매우 중요한 일이다.

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우리나라는 1991년 남북한 유엔 동시 가입 후인 1992년 제6차 유엔지명표준화회의(United Nations Conferences on the Standardization of Geographic Names: UNCSGN)에서 일본해의 명칭 문제를 제기하고 'East Sea'로의 변경을 공식 요구했다. 1980년대에는 이 바다의 명칭으로 Orient Sea 또는 Blue Sea가 제안되기도 하였으며 (한 1989), 지난 2006년 11월 당시 노무현 대통령은 베트남 하노이에서 열린 아시아 · 태평양경제협력체(APEC) 정상회의를 계기로 열린 한일 정상회담에서 아베 신조(安倍晋三) 일본 총리에게 동해 명칭 등을 둘러싼 양국 간 갈등의 해결책으로 '평화의 바다'를 제안하기도 했다.

그러나 최근 대부분의 지도 등에서 동해의 표기를 일본해로 하고 있음에도 불구하고, 1993년부터 수행된 한-일-러 국제 공동 동해 연구 사업인 CREAMS(Circulation Research of East Asian Marginal Sea)에 미국 연구자들이 1998년부터 참여하면서 미국 측 프로그램의 명칭을 JES

(Japan/East Sea) Program으로 명명하였고, 2000년대 이후 우리나라 과학자들의 노력으로 북태평양해양과학기구(PICES)에서는 동해의 명칭을 일본해와 동해로 병기하도록 공식화하여 2004년에 발간된 북태평양 해양 생태계 보고서에 동해의 명칭이 Japan/East Sea로 표기되었다(PICES 2004). 앞서 언급하였듯이 바다에 대한 과학적인 우수한 연구결과를 국제적으로 발표하는 것이 바다의 명칭에 중요한 역할을 하고 있으므로, 동해 표기에서 우리의 주장을 펼치기 위한 방법의 하나로 우수한 논문을 국제 유수 학술지에 많이 발표하는 것이 매우 중요하다.

Table 1. List of journals of subject categories in oceanography from Journal Citation Reports

No	Journal title	ISBN number	Impact factor	Cited half-Life
1	Acta Oceanologica Sinica	0253-505X	0.507	5.6
2	Applied Ocean Research	0141-1187	0.34	9.5
3	Atmosphere-Ocean	0705-5900	1.225	8.3
4	Bulletin of Marine Science	0007-4977	0.814	>10.0
5	Continental Shelf Research	0278-4343	1.694	7.5
6	Deep-Sea Research Part I	0967-0637	2.025	6.8
7	Deep-Sea Research Part II	0967-0645	1.278	5
8	Dynamics of Atmospheres and Oceans	0377-0265	0.917	9.5
9	Environmental Fluid Mechanics	1567-7419	0.886	
10	Estuarine Coastal and Shelf Science	0272-7714	1.633	7.8
11	Fisheries Oceanography	1054-6006	2.128	5.5
12	Geo-Marine Letters	0276-0460	1.143	8.9
13	Helgoland Marine Research	1438-387X	0.974	>10.0
14	ICES Journal of Marine Science	1054-3139	1.225	5.8
15	IEEE Journal of Oceanic Engineerings	0364-9059	0.873	6.8
16	Indian Journal of Marine Sciences	0379-5136	0.202	>10.0
17	Izvestiya Atmospheric and Oceanic Physics	0001-4338	0.306	5.6
18	Journal of Marine Research	0022-2402	1.562	>10.0
19	Journal of Marine Systems	0924-7963	1.225	6.3
20	Journal of Navigation	0373-4633	0.347	7.3
21	Journal of Oceanography	0916-8370	1.302	4.3
22	Journal of Physical Oceanography	0022-3670	2.1	>10.0
23	Journal of Sea Research	1385-1101	1.245	5.6
24	Limnology and Oceanography	0024-3590	3.249	>10.0
25	Marine Chemistry	0304-4203	2.103	9.1
26	Marine Ecology-Progress Series	0171-8630	2.315	8.6
27	Marine and Freshwater Research	1323-1650	1.478	6.2
28	Marine Geology	0025-3227	2.031	8.1
29	Marine Geophysical Researches	0025-3235	0.086	9.4
30	Marine Georesources and Geotechnology	1064-119X	0.256	
31	Marine Technology and Sname News	0025-3316	0.2	
32	Marine Technology Society Journal	0025-3324	0.409	7.6
33	Naval Engineers Journal	0028-1425	0	
34	New Zealand Journal of Marine and Freshwater Research	0028-8330	0.77	>10.0
35	Ocean and Coastal Management	0964-5691	1.228	6.1
36	Ocean Engineering	0029-8018	0.452	5.6
37	Ocean Modelling	1463-5003	2.558	2.7
38	Oceanography and Marine Biology	0078-3218	9.25	>10.0
39	Oceanologica Acta	0399-1784	1.823	>10.0
40	Oceanologia	0078-3234	0.623	5.6
41	Oceanology	0001-4370	0.508	>10.0
42	Paleoceanography	0883-8305	3.233	7.7
43	Polar Research	0800-0395	0.882	8.8
44	Progress in Oceanography	0079-6611	2.522	5.9
45	Tellus series A-Dynamic Meteorology and Oceanography	0280-6495	1.947	7.9
46	Terrestrial Atmospheric and Oceanic Sciences	1017-0839	0.965	5.4

Table 2. Search period and number of papers on the East Sea in each journal

No.	Journal name	Period of search	No. of papers
1	Atmospheric Environment	Jan. 1994 - Nov. 2006	27
2	Bulletin of Marine Science	Sep. 1997 - Sep. 2006	3
3	Continental Shelf Research	Aug. 1982 - Dec. 2006	17
4	Deep-Sea Research Part I	Jan. 1993 - Dec. 2006	4
5	Deep-Sea Research Part II	Jan. 1993 - Dec. 2006	27
6	Earth and Planetary Science Letters	Jan. 1966 - Dec. 2006	27
7	Fisheries Oceanography	Mar. 1997 - Nov. 2006	5
8	Geo-Marine Letters	Mar. 1981 - Dec. 2006	10
9	Geophysical Research Letters	Jan. 2002 - Dec. 2006	36
10	Helgoland Marine Research	Aug. 1972 - Dec. 2006	3
11	Journal of Geophysical Research, Ocean	Jan. 2002 - Dec. 2006	16
12	Journal of Marine Systems	May, 1991 - Dec. 2006	4
13	Journal of Oceanography	Feb. 1971 - Dec. 2006	97
14	Journal of Physical Oceanography	Jan. 1971 - Dec. 2006	10
15	Marine Biology	Jun. 1967 - Nov. 2006	30
16	Marine Chemistry	Sep. 1972 - Dec. 2006	14
17	Marine Ecology-Progress Series	Mar. 1995 - Nov. 2006	21
18	Marine Geology	Feb. 1964 - Nov. 2006	24
19	Marine Geophysical Researches	Aug. 1972 - Dec. 2006	8
20	Marine Pollution Bulletin	Jan. 1970 - Dec. 2006	23
21	Marine Technology Society Journal	Jan. 1996 - Dec. 2006	4
22	Oceanography	Jan. 2001 - Dec. 2006	10
23	Oceanology	Feb. 1996 - Dec. 2006	23
24	Progress in Oceanography	Jan. 1963 - Dec. 2006	29

국토해양부의 지원을 받은 동해해류 및 환경특성연구(EAST-1)의 일환으로 2006년까지 발표된 국제 학술 논문에서 동해의 표기현황을 조사하였으며, 우리나라 해양학자들의 참고자료로 그 결과를 정리하였다.

2. 자 료

국제적 유명 학술지에 발표된 논문들 중 동해에 관련된 논문들의 동해 표기 현황을 알아보기 위하여 ISI Web of Knowledge에서 제공하는 Journal Citation Reports의 Subject Category중 해양학(Oceanography)에 해당하는 46개의 저널(Table 1)중 인터넷으로 검색이 가능한 저널중 동해에 관한 논문이 3편 이상 게재된 학술지와 그 외에 해양관련 Journal Citation Report의 저널 중 동해 관련 논문이 10편 이상 게재된 학술지 7개를 대상으로 검색을 실시하였다.

검색어로는 'East Sea', 'Japan Sea', 'Sea of Japan', 'JES'를 입력하였으며, 각 저널의 Internet으로 검색 가능한 시점으로부터 2006년 말까지를 검색하였고 각 저널의 검색 기간은 Table 2와 같다. 그 결과 총 472편의 동해 관련 논문이 검색되었으며(부록 참조) 각 학술지별 검색된 논문의 수를 Table 2에 같이 나타내었다.

동해관련 논문 출판현황

동해에 관한 논문은 일본해양학회에서 발간하는 Journal of Oceanography에 97편이 게재되어 가장 많이 출판되었으며, 이는 전체 논문 수에 약 21%를 차지하였고, 다음이 Geophysical Research Letters에 36편으로 7.6%를 차지하였다.

동해표기 현황

국제적 유명 학술지에 발표된 논문들 중 동해에 관련된 논문들의 동해 표기 현황을 살펴보면 검색된 총 472편의 논문 중에서 Japan Sea 혹은 Sea of Japan으로 표기된 것이 322편으로 전체의 68.2%를 차지하고, East Sea로 단독 표기된 것이 21편으로 4.4%, East Sea와 Japan Sea 혹은 Sea of Japan으로 병기된 것이 129편으로 27.3%를 차지한다(Table 3).

이들 표기현황을 연도별로 살펴보면(Fig. 1), 1980년대 초반까지는 동해와 일본해를 병기한 논문이 전무하여 모든 논문에서 일본해(Japan Sea 혹은 Sea of Japan)로 표기되다가 1980년대 중반 Chough et al.(1985)을 시작으로 등장하기 시작하여 1990년대 말부터는 급속히 증가하여 2004년 이후로는 동해와 일본해를 병기한 논문이 일본해 단독 표기 논문의 수를 상회한다.

Table 3. The status of naming in each journal

No.	Journal name	Japan Sea	Parallel usage	East Sea	No. of papers
1	Atmospheric Environment	26	1		27
2	Bulletin of Marine Science	3			3
3	Continental Shelf Research	9	8		17
4	Deep-Sea Research Part I	1	2	1	4
5	Deep-Sea Research Part II	4	23		27
6	Earth and Planetary Science Letters	27			27
7	Fisheries Oceanography	3	2		5
8	Geo-Marine Letters		8	2	10
9	Geophysical Research Letters	17	16	3	36
10	Helgoland Marine Research	3			3
11	Journal of Geophysical Research, Ocean	9	7		16
12	Journal of Marine Systems	2	2		4
13	Journal of Oceanography	80	14	3	97
14	Journal of Physical Oceanography	6	4		10
15	Marine Biology	29	1		30
16	Marine Chemistry	13	1		14
17	Marine Ecology-Progress Series	17		4	21
18	Marine Geology	13	7	4	24
19	Marine Geophysical Researches	4	3	1	8
20	Marine Pollution Bulletin	19	3	1	23
21	Marine Technology Society Journal	1	3		4
22	Oceanography		10		10
23	Oceanology	23			23
24	Progress in Oceanography	13	14	2	29
	Total	322	129	21	472

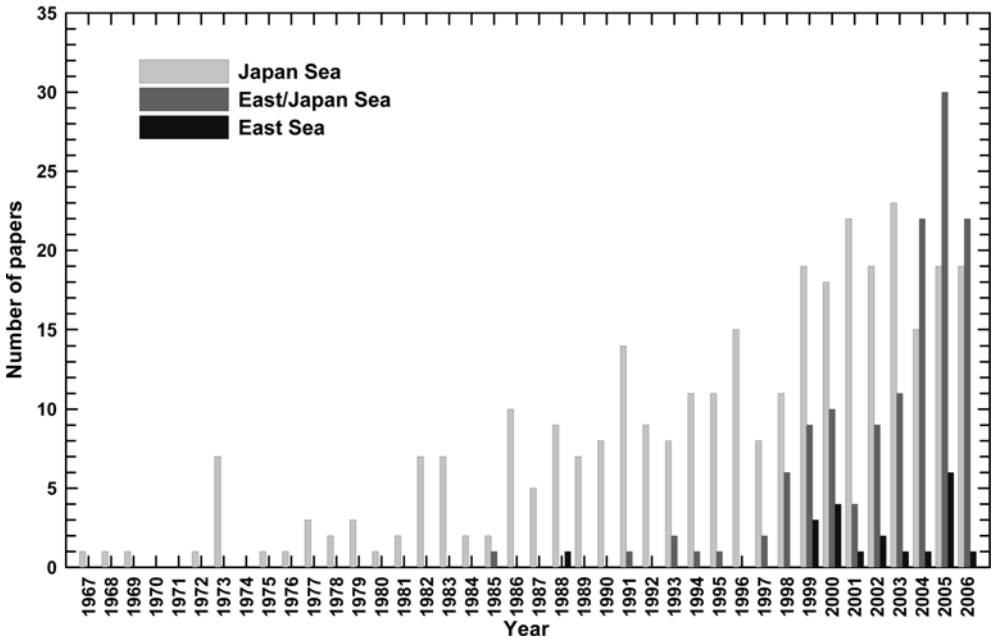

Fig. 1. The status of naming the East Sea in international scientific journals by year.

동해를 East Sea로 단독 표기한 논문은 1988년 Suk (1988)에 의해 the East Sea of Korea로 표기된 이후 1999년 이후에는 작은 숫자이지만 매년 단독 표기의 논문이 발표되었다. 총 21편의 단독 표기 논문 중 20편은 우리나

Table 4. The status of naming by the nationality of first author

Nationality of 1st author	No. of papers	East/Japan Sea	Japan Sea
Australia	1	0	1
Brazil	1	1	0
Canada	4	1 (25.0%)	3 (75.0%)
Chaina	2	0	2
France	5	0	5
Germany	2	0	2
Japan	239	8 (3.3%)	231 (96.7%)
Korea	104	98 (94.2%)	6 (5.8%)
Russia	50	2 (1.0%)	48 (99.0%)
Taiwan	5	1 (20.0%)	4 (80.0%)
UK	3	1 (33.3%)	2 (66.7%)
USA	65	43 (66.2%)	22 (33.8%)

라의 학자에 의해 쓰인 논문이지만 2005년에 발표된 Zheng(2005)는 외국 학자에 의해 발표된 유일한 단독 표기의 논문이다. 그러나 이는 우리나라 학자에 의해 발표된 논문(Kim et al. 2005)의 comment로 엄밀한 의미에서 외국학자에 의해 단독 표기가 되었다고 보기는 어렵다.

동해를 대상으로 하는 논문 총 472편을 제1저자를 기준으로 하는 경우 총 12개국으로부터 출판되었으며, 이중 일본이 239편으로 전체의 약 50.6%를 차지하고 우리나라는 104편으로 22.0%, 그 다음으로는 미국 13.8%, 러시아 10.6%로 동해 주변국인 한국, 일본, 미국, 러시아가 전체의 97%에 해당한다. 일본인이 제1저자인 경우, 일본해양학회에서 발간되는 Journal of Oceanography에 출판된 논문 97편 중 일본인이 제1저자인 76편을 제외하고도 다른 저널에 출판된 논문이 163편으로 우리나라의 104편을 상회한다.

제1저자의 국적별 표기 현황을 살펴보면(Table 4), 동해/일본해 병기 비율은 우리나라가 총 104편의 논문 중 98편(94.2%)로 가장 높고, 미국, 영국, 캐나다, 일본, 러시아 순이다. 특이한 점은 오히려 일본의 경우 병기한 논문의 비율이 3.3%로 러시아에 비해 높다는 점이다.

제1저자의 국적별 표기 현황을 연도별로 살펴보면, 1985년 이후 1990년대 말까지는 병기한 경우는 모두 제1저자가 한국인이었으나, 1998년부터는 미국인이 병기하기 시작했고(Gardner et al. 1998), 그 후 매년 동해를 병기한 논문 2-3건이 외국인들에 의해 발표되었으며 2004년 이후 급격하게 외국인에 의해 동해가 병기된 논문의 수가 증가하였다(Fig. 2).

특기할 만한 것은 2002년 이후에는 일본인들도 동해 명칭을 병기하기 시작하였다는 점이다. 일본인이 제1저자로 병기한 8편의 논문 중에서 한국인 또는 한국계 일본인이 공저자로 포함되지 않고 순수 일본인들에 의해서만 발간된 논문 4편에서 동해 명칭이 병기되어 표기되었다(Hiyama et al. 2002; Chiba and Saino 2003; Deguchi et al. 2004; Tian et al. 2006).

최근 들어 동해 명칭의 병기가 늘어난 것은 두 말할 나위 없이 우리나라의 해양학자들의 노력에 의한 것으로 볼 수 있다. 앞으로 우리나라 해양학자들에 의한 동해 관련 연구 논문들이 더 많아지면서 동해의 표기에 대한 변화가 지속되리라고 기대한다.

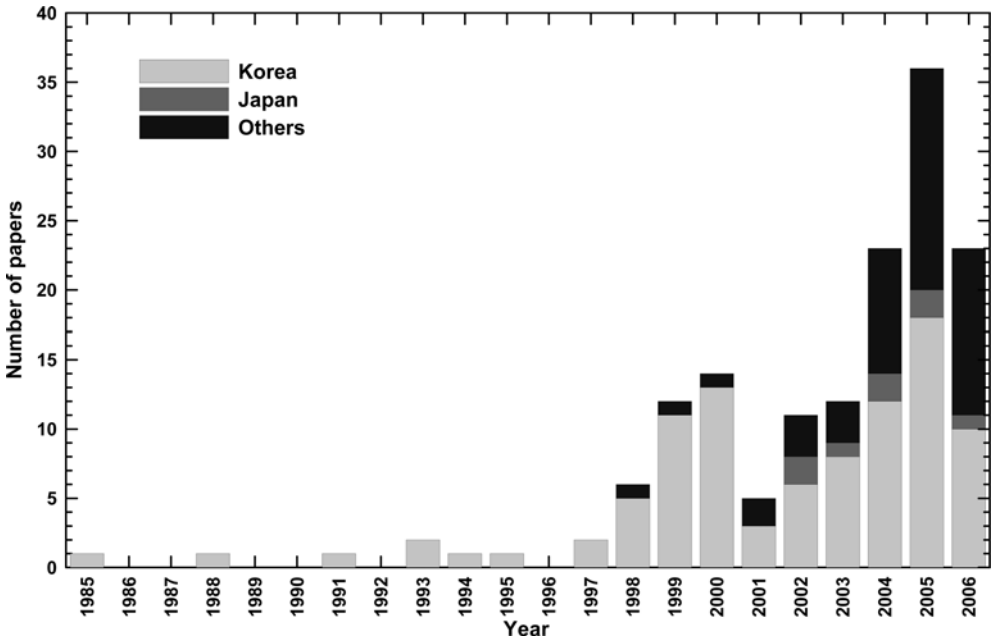

Fig. 2. The status of the nationality of first author who use the parallel using of East Sea and Japan Sea by year.

3. 제 언

이제 우리나라의 학술지도 세계적인 수준의 학술지로 도약하려는 노력을 하고 있는 때이므로 동해의 명칭에 대한 원칙을 정해야 할 때이다.

일본해양학회에서 발간하고 있는 SCI(Science Citation Index)급 국제저널인 Journal of Oceanography의 경우, 2003년부터 발행되는 모든 논문에 동해 명칭이 'Sea of Japan' 혹은 'Japan Sea'가 아닌 경우에 'The Editor-of-Chief does not recommend the usage of the term East Sea, East/Japan Sea, East/Japan Sea or Japan/East Sea in place of Sea of Japan or Japan Sea'라는 주석의 표기를 의무적으로 달도록 하고 있으며, 특히 Key words의 표기는 Japan/East Sea가 본문에 사용될 지라도 Japan Sea 만을 사용하고 있다. 향후 우리나라에서 발간되는 학술지에 외국인이 동해에 대한 연구논문을 투고하는 경우 동해의 표기에 대해 어떻게 할 것인지에 대한 원칙을 정해야할 것으로 생각된다.

사 사

본 연구는 국토해양부에서 지원된 동해 해류 및 환경 특성 연구(EAST-1) 사업의 지원을 받아 수행되었습니다. 심사를 받아주신 두 분의 심사위원께도 감사의 말씀을 전합니다.

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