

AIR CARGO MARKET FLOWS IN BALTIC SEA REGION 2005-2010

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Abstract

The paper reports an outlook on Baltic Sea Region air cargo flows during the five-year period of 2005-2010. With its annual total of 650 thousands of tonnes at the end of the period, Baltic Sea Region is insignificant in comparison to other main global players as Hong Kong (4 million tonnes) or Memphis, TN, USA (3.9 million tonnes). The most intensive external traffic was on both ways between Baltic Sea Region and United Kingdom, USA, UAE, China and Japan. The Baltic Sea Region internal traffic records of air cargo were especially elevated in the western part of the Baltic Sea Region between Sweden and Germany. One more significant outlier was clearly visible – transport from Turkey to Tallinn with its peak of 20 000 tonnes in 2008. Unfortunately, it was impossible to understand reasons of this phenomenon. Perhaps, if more detailed Russian Federation data was available, I could suggest some explanation. Access to Russian databases was unlikely possible even before 2014-2015 deterioration of the Russia-West relations. Deeper analysis of free public data is impossible and shortest flight paths to East Asia could be jeopardized.

***Keywords:** air transport, air cargo, Baltic Sea Region.*

1. INTRODUCTION

In January 2013, year-to-date air cargo world activity is reported by a global partner, the Airports Council International (ACI), to experience an overall modest growth of 7.4% (see Table 1, below). The key air transport markets emerged in the Middle East, Latin America-Caribbean, Asia-Pacific as well as Eastern Europe and Turkey that serve a substantial critical mass of traffic.¹⁾ On the other hand events like Chinese New Year and the 2012 Leap Year can skew the total result and month-to-month comparison of February 2013 and 2012 saw a 14.7% fall in global freight traffic.²⁾ IATA expects global freight traffic to grow 1.4% in 2013, reversing declines of 1.5% in 2012 and 0.6% in 2011.³⁾

The total annual BSR air cargo market (c.a. 650 000 t in 2010) is several times smaller than the volumes of global leaders. (see Table 1) The most likely scenario suggests growth to around 1 000 000 t in of air cargo handled (loaded and unloaded) at Baltic Sea Airports the 2016.

¹⁾ <http://www.aci.aero/News/Releases/Most-Recent/2013/03/11/Global-passenger-traffic-posts-modest-growth-of-15-in-January-> "While the euro crises, America's fiscal cliff as well as other market risks continue to be obstacles for the air transport industry, the revival of business confidence represents an important step forward, particularly as it relates to freight traffic. As businesses begin to build up their inventories and shipments based on stronger expected demand, we are likely to see air freight traffic in positive territory more consistently from month to month over the next quarter.", ACI World's Economics Director Rafael Echaverre, 2013-03-11

²⁾ <http://www.aircargoworld.com/Air-Cargo-News/2013/04/air-cargo-improves-modestly-through-february/0213111>

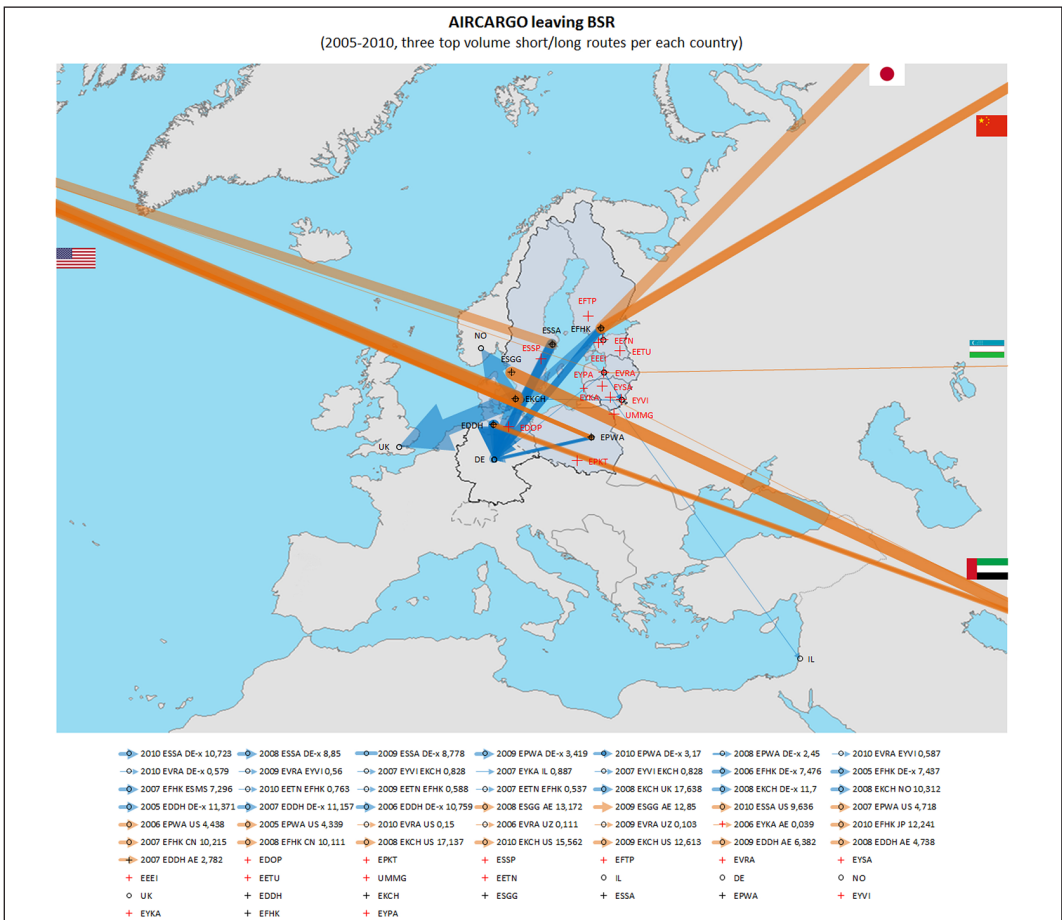
³⁾ http://www.joc.com/air-cargo/cargo-airlines/iata-2013-global-air-cargo-demand-rates-rise_20130131.html

Table 1. ACI report of August 2012 on global air cargo activity⁴⁾.

BUSIEST AIRPORTS – CARGO (FREIGHT AND MAIL)				
TOP 10 TOTAL CARGO AIRPORTS 2010				
RANK	CITY	CODE	TOTAL CARGO	% CHANGE
1	HONG KONG, HK	HKG	4 165 852	23.2
2	MEMPHIS TN, US	MEM	3 916 811	5.9
3	SHANGHAI, CN	PVG	3 228 081	26.9
4	INCHEON, KR	ICN	2 684 499	16.1
5	ANCHORAGE AK, US*	ANC	2 646 695	36.6
6	PARIS, FR	CDG	2 399 067	16.8
7	FRANKFURT, DE	FRA	2 275 000	20.5
8	DUBAI, UAE	DXB	2 270 498	17.8
9	TOKYO, JP	NRT	2 167 853	17.1
10	LOUISVILLE	SDF	2 166 656	11.2

*ANC data include transit freight.

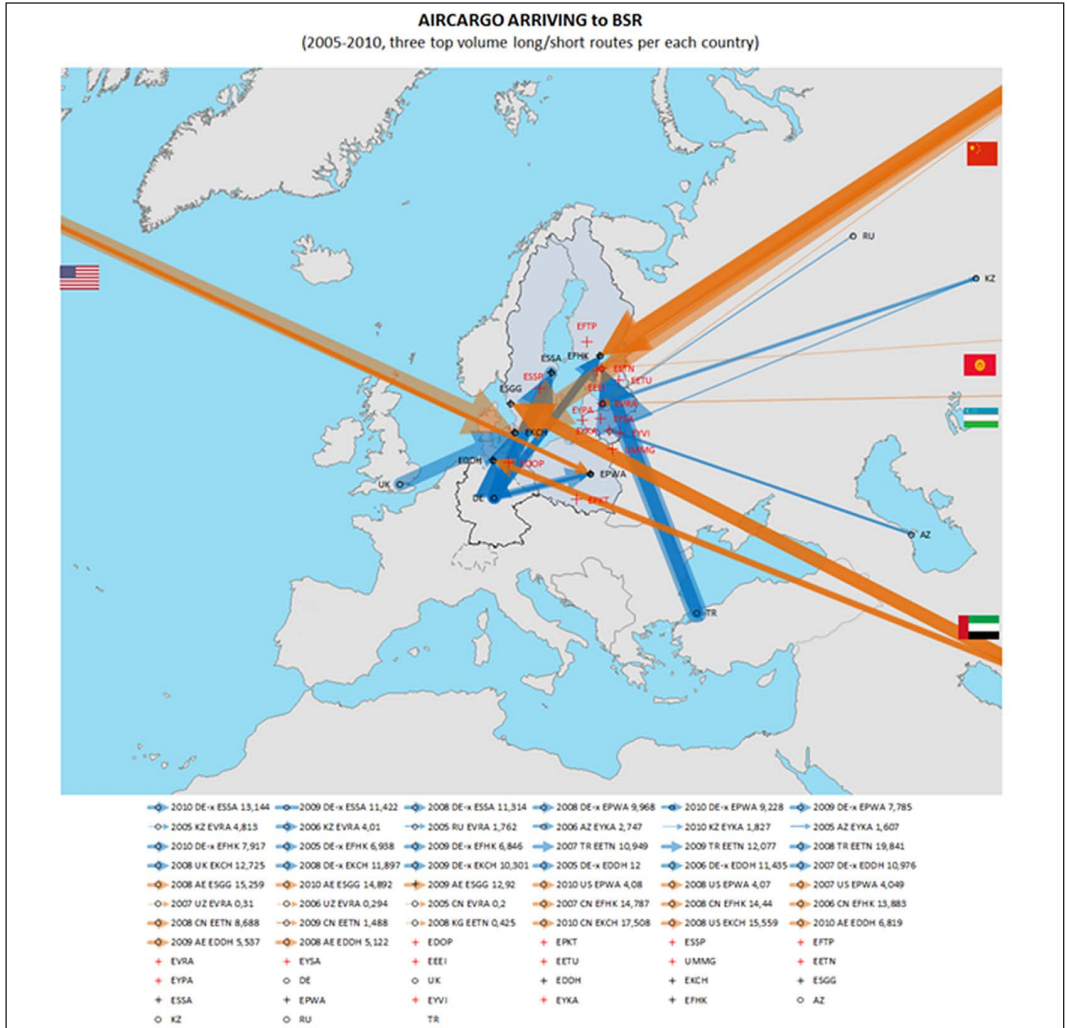
2. BALTIC SEA REGION ACTIVITY BIG PICTURE⁵⁾



Map 1. (EUROSTAT avia_gor data package, four letter ICAO airport codes, two letter ISO alpha-2 country codes, a special "DE-BSR" and "DE-x" code follows the project definition for Baltic part of Germany and the rest of Germany, last number in the map legend expresses a volume of 1000s of tons annually.)

⁴⁾ ACI Media Release, ACI releases World Airport Traffic Report 2010, p.4, http://www.aci.aero/aci/aci/file/Press%20Releases/2011/PR_01082011_2010_WATR.pdf

⁵⁾ http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Freight_transport_statistics#Air_freight



Map 2. (EUROSTAT avia_gor data package, four letter ICAO airport codes, two letter ISO alpha-2 country codes, a special “DE-BSR” and “DE-x” code follows the project definition for Baltic part of Germany and the rest of Germany, last number in the map legend expresses a volume of 1000s of tons annually.)

LONG-HAUL

It is clearly visible that the most of the **long-haul** (orange arrows on Map 1) air cargo was transported to USA, UAE, China and Japan from the western part of the Baltic Sea Region (Gothenburg-Landvetter Airport and Copenhagen Kastrup Airport), but Stockholm Arlanda Airport and Helsinki-Vantaa Airport were just behind the leaders. Carriages from Warsaw Chopin Airport to USA and from the most active Baltic-German cargo airport, Hamburg-Fuhlsbüttel to United Arab Emirates are on

◀ “About 14,5 million tonnes of air freight (both national and international) was carried through airports within the EU-27 in 2011. In Germany dealt with 4,3 million tonnes of air freight, considerably more than in any other EU Member State – the United Kingdom had the second highest amount of air freight at 2.4 million tonnes. Some of the smaller EU Member States are relatively specialised in air freight, notably all of the Benelux countries, and in particular, Luxembourg (which ranked as the seventh largest air freight transporter among the EU Member States).”

average at the similar level of 6 thousand tons per year. With comparatively lower volumes (less than 1000 t), the Baltic States serviced departures to the US, as well as to the unique, Central Asian destinations (i.e Uzbekistan, on average 100 t/annum).

Table 4. Annual air cargo **from** Baltic airports in thousands of tons (routes **3500km or farther**) (EUROSTAT avia_gor data package, ICAO airport codes, “:” means lack of data)

	2005	2006	2007	2008	2009	2010	TOTAL
EFHK	17,91	21,48	29,64	33,04	29,94	45,29	177,30
EKCH	:	:	:	46,57	31,17	44,83	122,58
ESSA	:	:	:	25,00	14,47	22,22	61,69
ESGG	:	:	:	18,66	19,39	20,81	58,86
EPWA	5,27	5,40	5,90	5,96	4,62	7,64	34,79
EDDH	0,42	3,42	5,49	5,52	6,68	7,43	28,95
EDDT	0,86	1,55	2,10	2,00	2,80	6,02	15,33
ETNL	0,00	0,13	0,12	0,60	2,17	0,61	3,63
EKBI	1,13	0,16	0,37	0,00	1,05	0,59	3,30
EVRA	0,14	0,11	0,07	0,10	0,10	0,41	0,94
ESMS	:	:	:	0,59	0,00	0,14	0,73
EDOR	:	:	:	0,60	0,00	0,00	0,60
EDDB	0,27	0,00	0,13	0,12	0,00	0,00	0,53
ESPA	:	:	:	0,00	0,40	0,00	0,40
EFTP	:	:	:	0,00	0,16	0,09	0,25
EETN	0,18	0,00	0,00	0,00	0,00	0,00	0,18
ESKN	:	:	:	0,10	0,00	0,00	0,10
EYKA	:	0,04	0,00	0,00	0,00	0,00	0,04
EFKU	:	:	:	0,00	0,00	0,00	0,00

Helsinki-Vantaa’s long-haul total volume leadership is only provisional (Table 1 above) as Copenhagen and Stockholm Arlanda total score, most probably, would be much higher if 2005-2007 periods were reported to the EUROSTAT.

Table 6. Annual air cargo **arriving to** Baltic airports in thousands of tons (routes **3500km or farther**) (EUROSTAT avia_gor data package, ICAO airport codes, “:” means lack of data)

	2005	2006	2007	2008	2009	2010	TOTAL
EFHK	26,30	30,09	35,85	41,69	36,00	50,16	220,07
EKCH	:	:	:	62,61	39,33	48,14	150,08
ESGG	:	:	:	15,26	12,92	14,89	43,07
EPWA	3,87	4,36	6,08	8,64	5,84	8,55	37,34
ESSA	:	:	:	14,76	9,57	12,29	36,62
EDDH	0,53	4,46	4,75	5,87	6,08	6,92	28,61
EDDT	0,18	0,82	1,59	3,31	4,14	6,36	16,41
EETN	0,00	0,00	0,16	9,11	1,49	0,21	10,98
EYKA	0,44	1,26	1,29	0,24	0,23	0,10	3,55
EVRA	0,26	0,41	0,31	0,05	0,11	0,25	1,38
ETNL	0,00	0,16	0,11	0,20	0,53	0,16	1,16
EDOR	:	:	:	0,20	:	:	0,20
ESKN	:	:	:	0,13	:	:	0,13
EFTP	0,00	0,00	0,06	0,00	0,04	0,00	0,10
ESMS	:	:	:	0,00	0,00	0,00	0,00
EDDB	0,00	0,00	0,00	0,00	0,00	0,00	0,00
EKBI	:	:	:	0,00	0,00	0,00	0,00

	2005	2006	2007	2008	2009	2010	TOTAL
EFHK	37,62	37,67	37,02	31,56	26,47	27,21	197,56
EKCH	:	:	:	68,12	40,15	27,98	136,25
ESSA	:	:	:	32,79	24,56	24,92	82,27
EPWA	10,25	12,08	13,04	11,37	12,93	14,07	73,76
EDDH	16,16	14,44	14,41	12,89	9,20	6,18	73,27
ESMS	:	:	:	16,45	14,18	17,19	47,82
EDDT	8,29	7,35	6,77	7,33	4,55	3,84	38,13
EDDB	6,33	3,50	3,63	3,66	3,17	4,20	24,48
ESGG	:	:	:	4,62	4,90	5,01	14,54
EVRA	1,51	1,63	1,69	1,92	2,81	3,91	13,46
EFTU	1,66	1,59	1,70	2,23	1,94	3,15	12,27
EKBI	1,74	1,64	1,24	1,97	1,13	4,19	11,91
EYVI	1,75	1,84	1,83	1,91	1,63	2,04	10,99
EETN	1,51	1,56	1,45	1,39	1,24	1,93	9,07
EPGD	:	1,21	1,32	1,66	1,51	1,58	7,29
EFOU	1,47	1,58	1,20	0,97	0,99	0,75	6,97
ESNU	:	:	:	2,44	2,31	2,08	6,82
EKAH	0,99	1,13	1,32	1,18	1,11	0,99	6,72
ESOW	:	:	:	0,80	2,01	2,59	5,40
EYKA	0,40	0,61	1,23	0,79	0,39	0,64	4,07
EPKK	:	0,45	0,52	0,88	0,84	0,82	3,51
ESNN	:	:	:	1,03	0,94	0,90	2,87
EPPO	:	:	0,64	0,81	0,64	0,62	2,70
EKYT	:	0,52	0,66	0,66	0,64	0,19	2,67
EPWR	:	0,29	0,58	0,51	0,49	0,42	2,28
EFVA	0,39	0,51	0,52	0,54	:	:	1,97
EKRN	0,47	0,68	0,46	0,09	0,07	0,00	1,77
ESPA	:	:	:	0,65	0,59	0,49	1,73
ESOK	:	:	:	0,57	0,47	0,40	1,43
EDDW	0,21	0,22	0,22	0,24	0,22	0,21	1,33
EPKT	:	:	:	0,19	0,63	0,41	1,23
ESMX	:	:	:	0,45	0,37	0,36	1,18
ESSV	:	:	:	0,32	0,43	0,31	1,06
EFHF	0,66	0,39	0,00	0,00	0,00	0,00	1,05
EFRO	0,20	0,18	0,17	0,16	0,16	0,12	0,99
EDDI	0,28	0,23	0,23	0,20	0,00	0,00	0,95
EFMA	0,14	0,17	0,17	0,09	0,15	0,12	0,83
EFTP	0,05	0,04	0,02	0,09	0,39	0,11	0,71
ESNQ	:	:	:	0,21	0,19	0,16	0,56
ETNL	:	:	:	0,13	0,19	0,17	0,49
ESKN	:	:	:	0,25	0,13	:	0,39
EDOR	0,23	:	:	0,13	:	:	0,35
EYPA	0,00	0,17	0,18	:	:	:	0,34
EFJO	0,14	0,10	0,06	0,03	:	:	0,32
EFKI	0,03	0,05	0,04	0,04	0,03	0,04	0,22
EFKU	0,04	0,03	0,02	0,02	:	:	0,11
ESSB	:	:	0,00	0,08	0,01	0,01	0,10
EFJY	0,03	0,02	0,02	0,02	0,02	:	0,10
EFKE	:	0,02	0,03	0,03	0,01	:	0,09
ESNS	:	:	:	0,04	0,03	:	0,07
EFKK	0,03	0,02	:	:	:	:	0,05
ESNZ	:	:	:	0,02	:	:	0,02
EFIV	0,02	:	:	:	:	:	0,02
EFLP	:	:	:	:	:	:	0,00
EPSC	:	:	:	:	:	:	0,00
EPRZ	:	:	:	:	:	:	0,00
EFKT	:	:	:	:	:	:	0,00
EFPO	:	:	:	:	:	:	0,00

SHORT-HAUL

The **short-haul** (blue arrows on Map 1) air cargo loaded at BSR airport's most prominent routes in the period were heading west to the United Kingdom (a peak of 17 638 T in 2008) and Norway including the most active, Baltic Germany ("DE-BSR") to the rest of Germany ("DE") connections (up to 11 371 T in 2005). Significant volume between 3 500 and 12 000 t per year of cargo from Denmark, Sweden, Finland and Poland also reached Germany, but not through the Baltic German airports. Annual tonnage loaded at Baltic States' airports has grown exponentially throughout the considered period. However, the momentum was mainly defined by air cargo originating from Riga International Airport (EVRA, see Chart 1), while Lennart Meri Tallinn and Vilnius airports, more or less, kept their levels oscillating between 1240 t (EETN in 2009) and 2040 t (EYVI in 2010).

Again, the Helsinki-Vantaa's short-haul air cargo departing volume sum of the period 2005-2010 locates it at the top of the list of Baltic Sea Region (see Table 2 below) and again it is provisional for the same reasons as in the case of the long-haul (data gaps).

The air cargo arriving to the Baltic Sea Region follows similar route pattern as the departing (compare Map 1 above). The surprising large volumes appear on route from Turkey to Tallin (EETN)

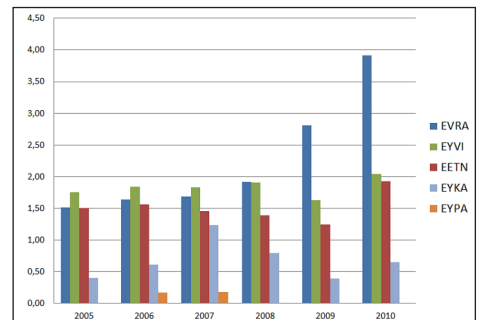


Chart 1. Baltic States short-haul departure in 1000s of tons [avia_gor]

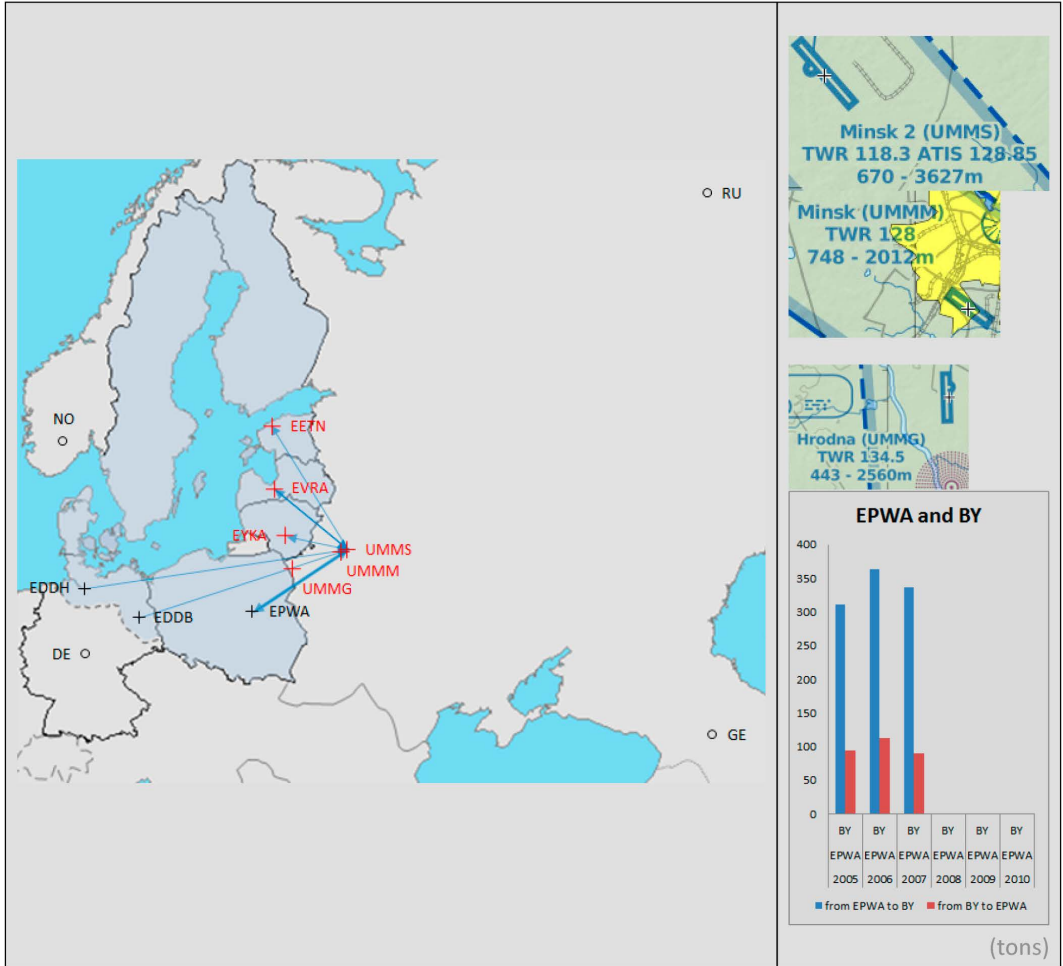
Table 5. Annual air cargo from Baltic airports in thousands of tons (routes shorter than 3500km) (EUROSTAT avia_gor, ICAO airport codes, ":" means lack of data)

Table 7. Annual air cargo **arriving to** Baltic airports in thousands of tons
(routes **shorter than 3500km**)
(EUROSTAT avia_gor data package, ICAO airport codes, “:” means lack of data)

	2005	2006	2007	2008	2009	2010	TOTAL
EKCH	3,66	4,44	3,91	61,31	36,83	27,97	138,12
ESSA	7,43	7,94	6,37	41,38	28,50	29,97	121,59
EFHK	17,93	17,56	18,64	23,40	18,55	21,89	117,96
EPWA	9,36	11,95	12,63	20,57	20,58	20,62	95,71
EETN	6,40	6,54	19,05	29,42	16,19	8,32	85,92
ESMS	2,84	4,95	8,78	18,68	17,62	18,35	71,22
EDDH	15,22	14,00	13,17	10,55	7,74	4,99	65,66
EDDT	9,16	8,36	8,11	8,36	5,63	3,87	43,49
EVRA	11,32	6,94	2,84	3,66	4,43	5,48	34,66
EDDB	5,11	3,71	3,95	4,05	3,40	4,40	24,63
ESGG	0,78	0,46	0,37	8,98	5,84	7,02	23,45
EYKA	2,60	3,90	3,37	2,51	1,47	3,86	17,71
EYVI	1,66	1,80	1,85	3,11	2,24	2,45	13,12
EFTU	1,40	1,74	1,87	2,21	1,66	3,78	12,66
EKBI	1,40	1,44	1,38	1,65	1,27	4,30	11,43
EFOU	2,04	1,98	1,91	1,69	1,65	1,33	10,61
EPGD	0,74	1,05	1,26	1,59	1,81	1,92	8,36
ESNU	:	:	:	2,96	2,62	2,35	7,94
ESOW	:	:	:	0,73	1,92	2,59	5,24
EPPO	0,36	1,08	1,07	0,99	0,86	0,61	4,96
ESGJ	:	:	:	1,42	1,34	1,49	4,25
EPKT	0,74	0,55	1,05	0,66	0,72	0,51	4,22
EKAH	0,45	0,22	0,14	1,05	1,00	1,06	3,91
EPKK	0,66	0,55	0,39	0,74	0,70	0,69	3,73
EDDW	0,49	0,77	0,53	0,41	0,49	0,37	3,06
EPWR	0,25	0,43	0,54	0,53	0,48	0,50	2,72
ESNN	:	:	:	0,66	0,91	0,92	2,49
ESPA	:	:	0,06	0,67	0,65	0,62	2,00
ESSV	:	:	:	0,61	0,70	0,55	1,85
EKYT	:	:	:	0,81	0,74	0,00	1,55
ESOK	:	:	:	0,61	0,45	0,40	1,46
EPSC	0,16	0,11	0,42	0,40	0,00	0,33	1,41
ESMX	:	:	:	0,53	0,45	0,42	1,39
ESOE	0,05	0,00	0,00	0,00	0,50	0,51	1,06
EPRZ	0,00	0,03	0,15	0,22	0,25	0,24	0,88
EFHF	0,50	0,32	0,00	0,00	0,00	0,00	0,81
EFRO	0,13	0,14	0,15	0,17	0,14	0,05	0,78
ESNG	:	:	:	0,26	0,25	0,25	0,75
ESNQ	:	:	:	0,18	0,18	0,19	0,55
EFVA	:	:	:	0,52	0,00	0,00	0,52
EFTP	:	:	:	:	0,11	0,31	0,42
EFMA	0,11	0,17	0,06	0,00	0,00	0,00	0,34
EDOR	0,26	0,00	0,00	0,02	0,00	0,00	0,28
EDDI	0,02	0,01	0,13	0,00	0,00	0,00	0,16
ESKN	:	:	:	0,06	0,08	0,00	0,14
ESSB	:	:	:	0,00	0,00	0,05	0,05
ETNL	:	:	:	0,02	0,02	0,00	0,04
EPBK	:	:	:	0,00	0,00	0,00	0,00
EFIV	:	:	:	0,00	0,00	0,00	0,00
EFKK	:	:	:	0,00	0,00	0,00	0,00
EFKU	:	:	:	0,00	0,00	0,00	0,00
EFJO	:	:	:	0,00	0,00	0,00	0,00
EFKE	:	:	:	0,00	0,00	0,00	0,00
EFKI	:	:	:	0,00	0,00	0,00	0,00
EFJY	:	:	:	0,00	0,00	0,00	0,00

3. BALTIC SEA REGION AIR CARGO FLOWS BY STATES

Belarus



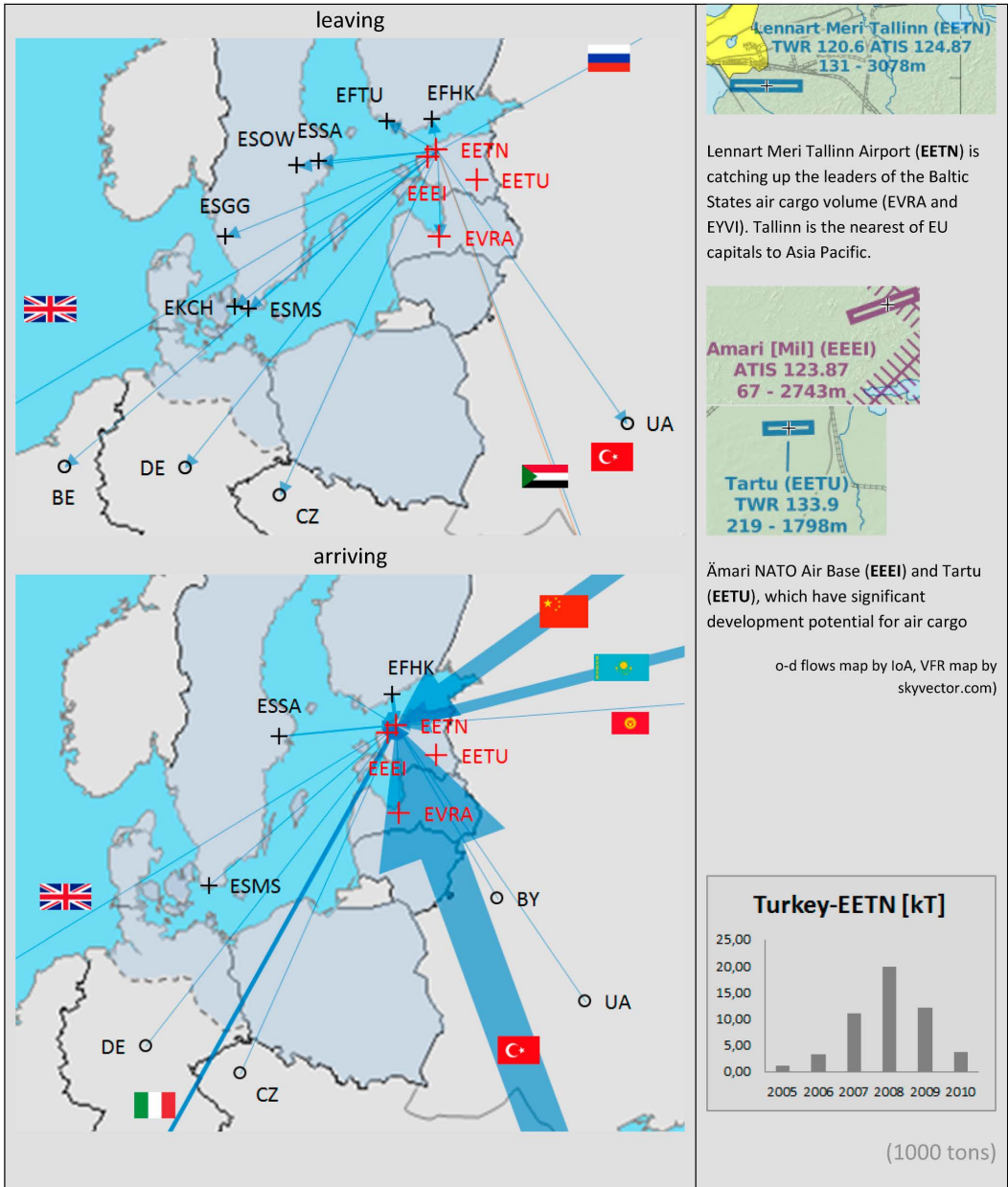
Map 3. Belarusian routes (EUROSTAT).

(o-d flows map by IoA, VFR map by skyvector.com)

Belarusian, known, air cargo market is relatively small and short-haul, but quite active in the Baltic Sea Region. The most intensive air route had connected Belarus with Warsaw Chopin airport in Poland (EPWA), but ceased to be reported in 2007.⁶⁾

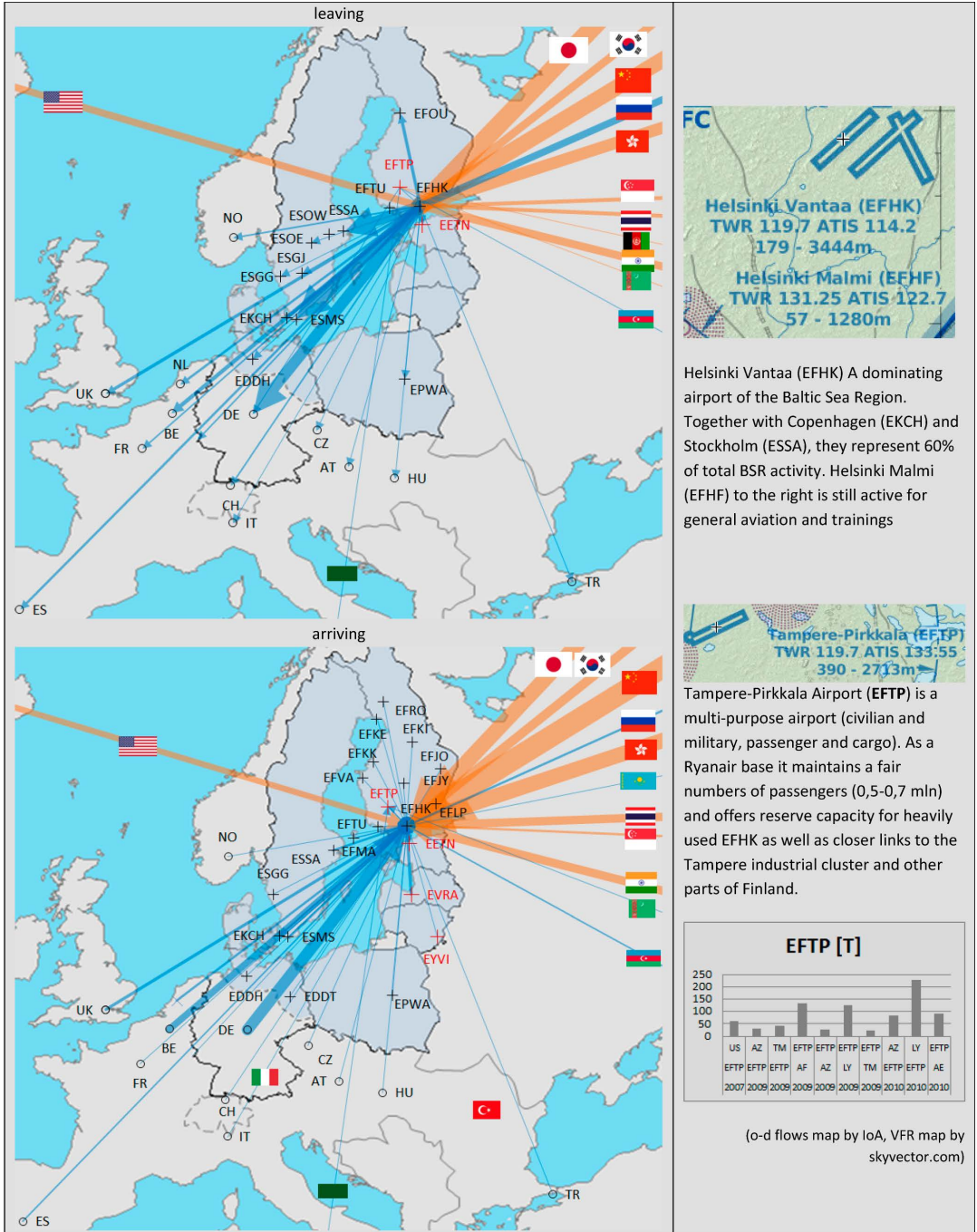
⁶⁾ The model failed to grasp air cargo interactions of Belarus with Baltic Sea Region. No volumes are forecasted as there was hardly any data do build model upon.

Estonia



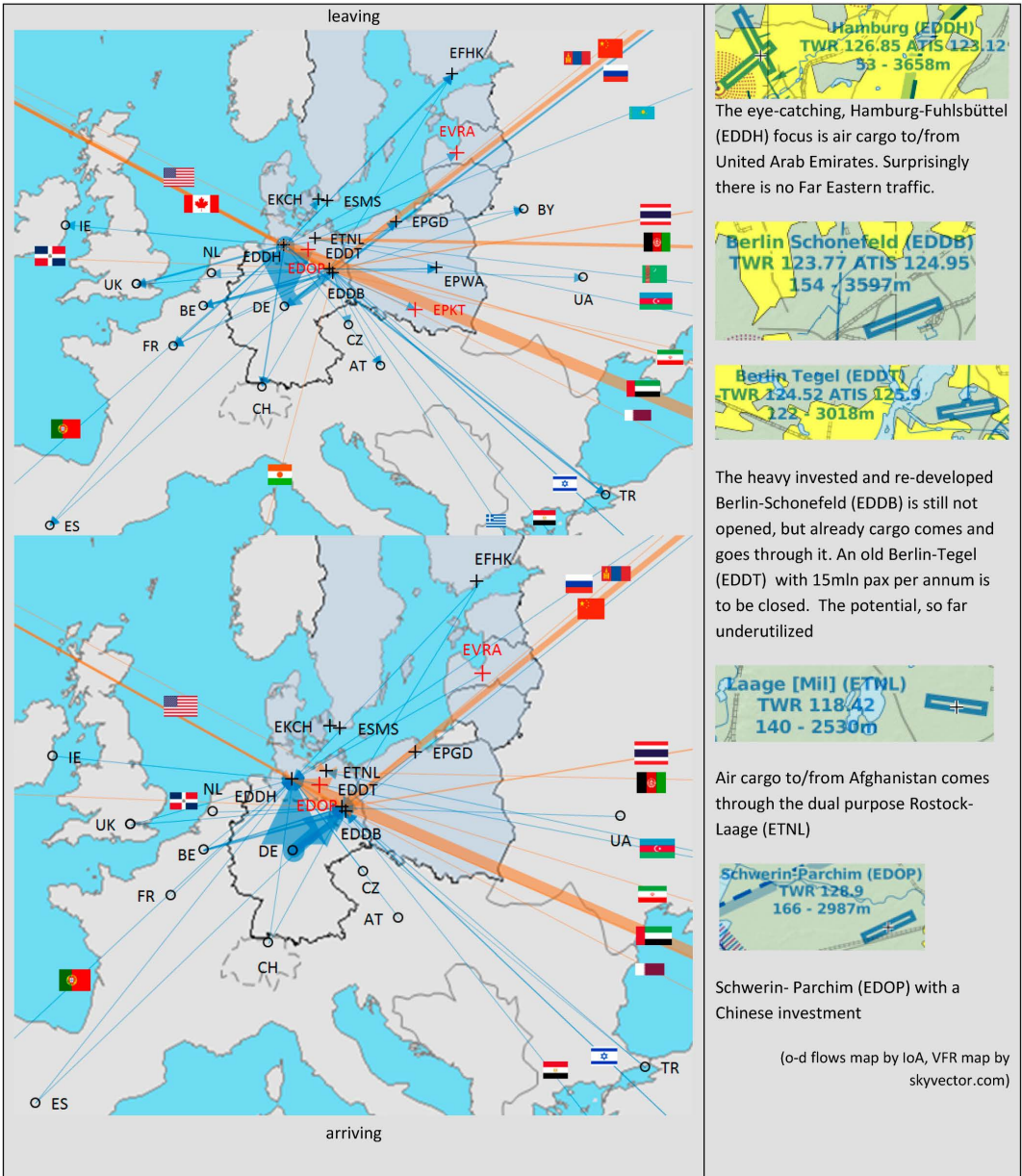
Map 4. Estonian airports 2005-2010 activity. 19 841T arrived to EETN from Turkey in 2008 . This route was active throughout the period, although fading in 2010.

Finland



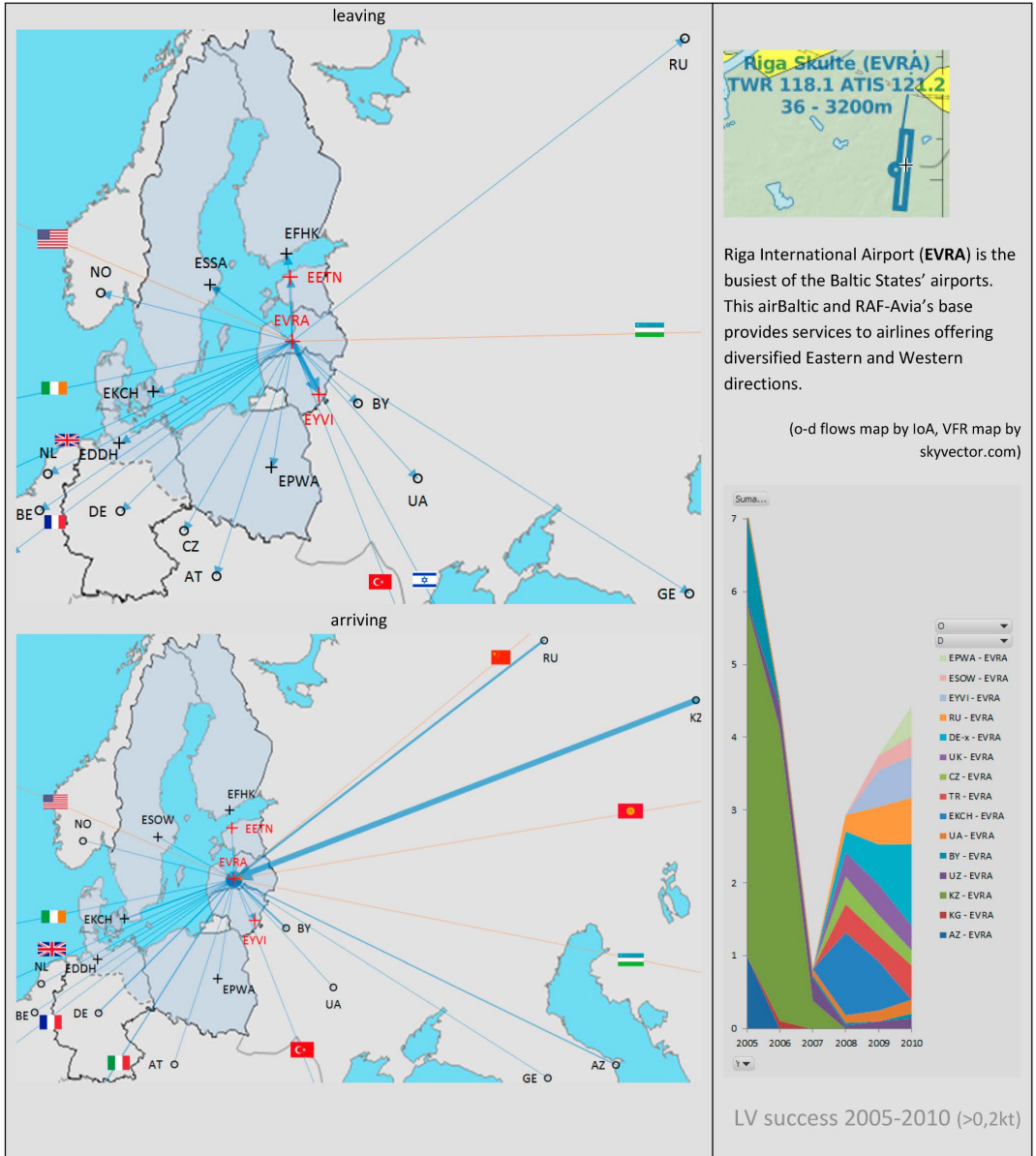
Map 5. Finland airports 2005-2010 activity.

Germany



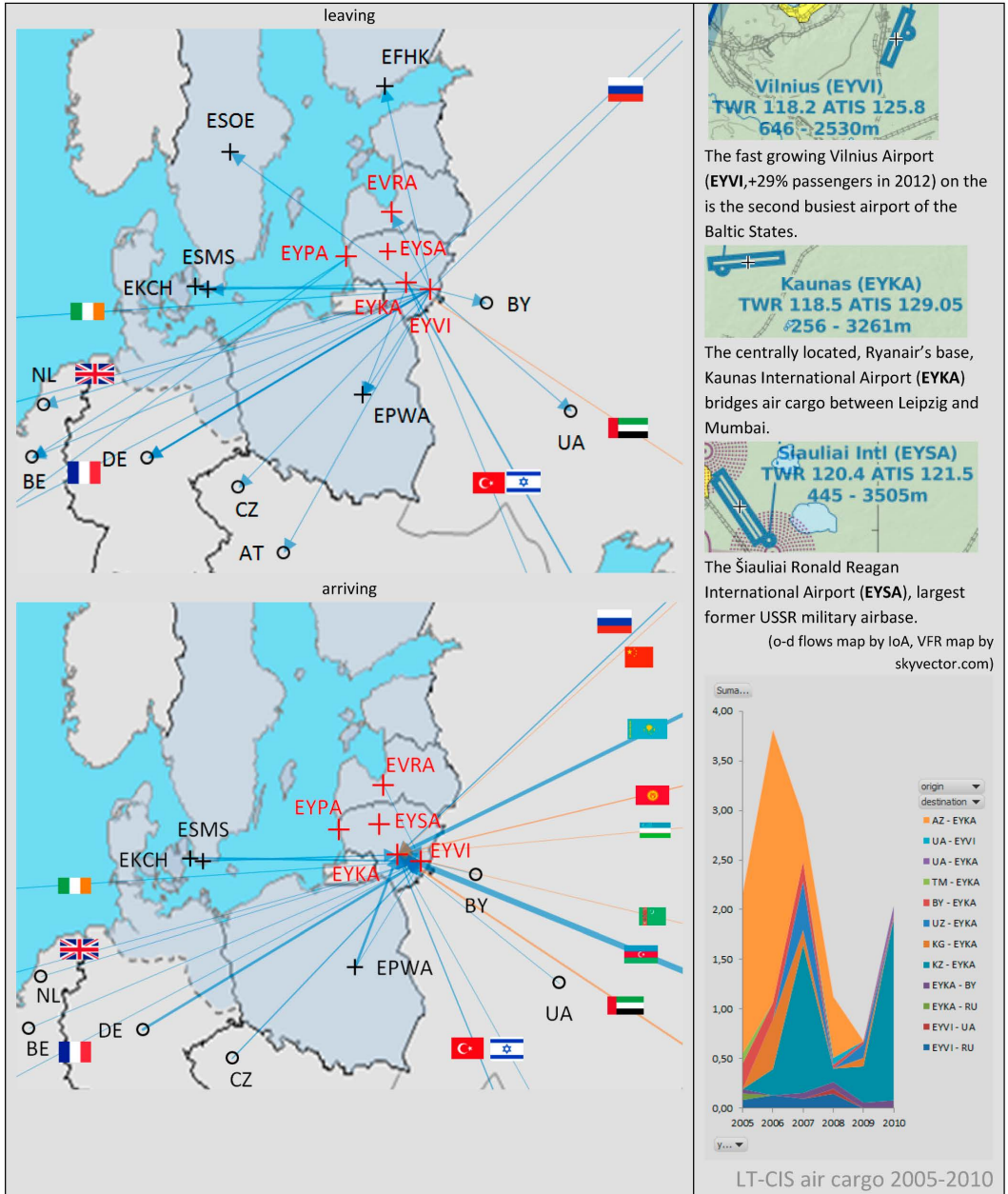
Map 6. Germany (in its Baltic part) airports 2005-2010 activity.

Latvia



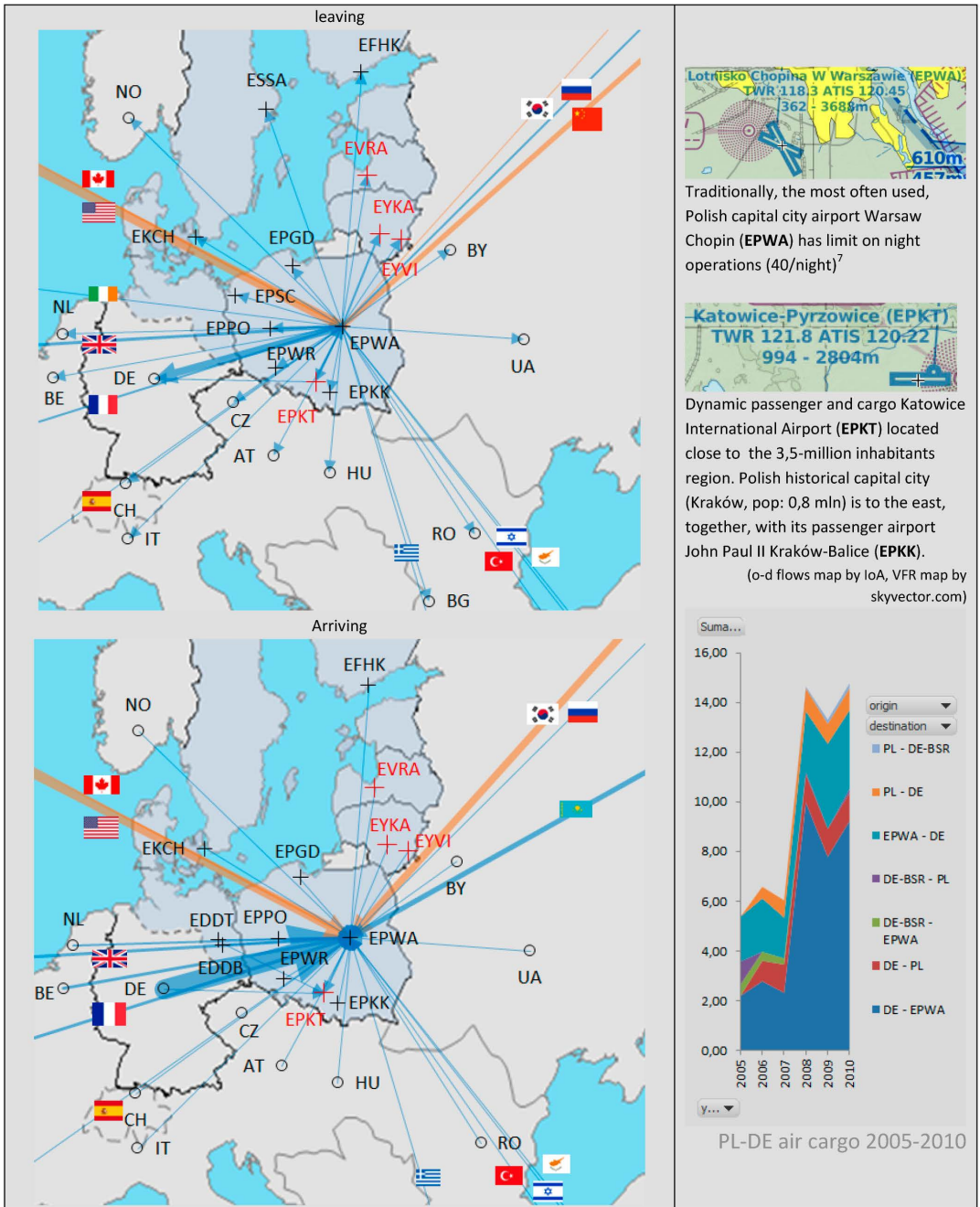
Map 7. Latvian Riga airport (EVRA) 2005-2010 activity.

Lithuania



Map 8. Lithuanian airports 2005-2010 activity.

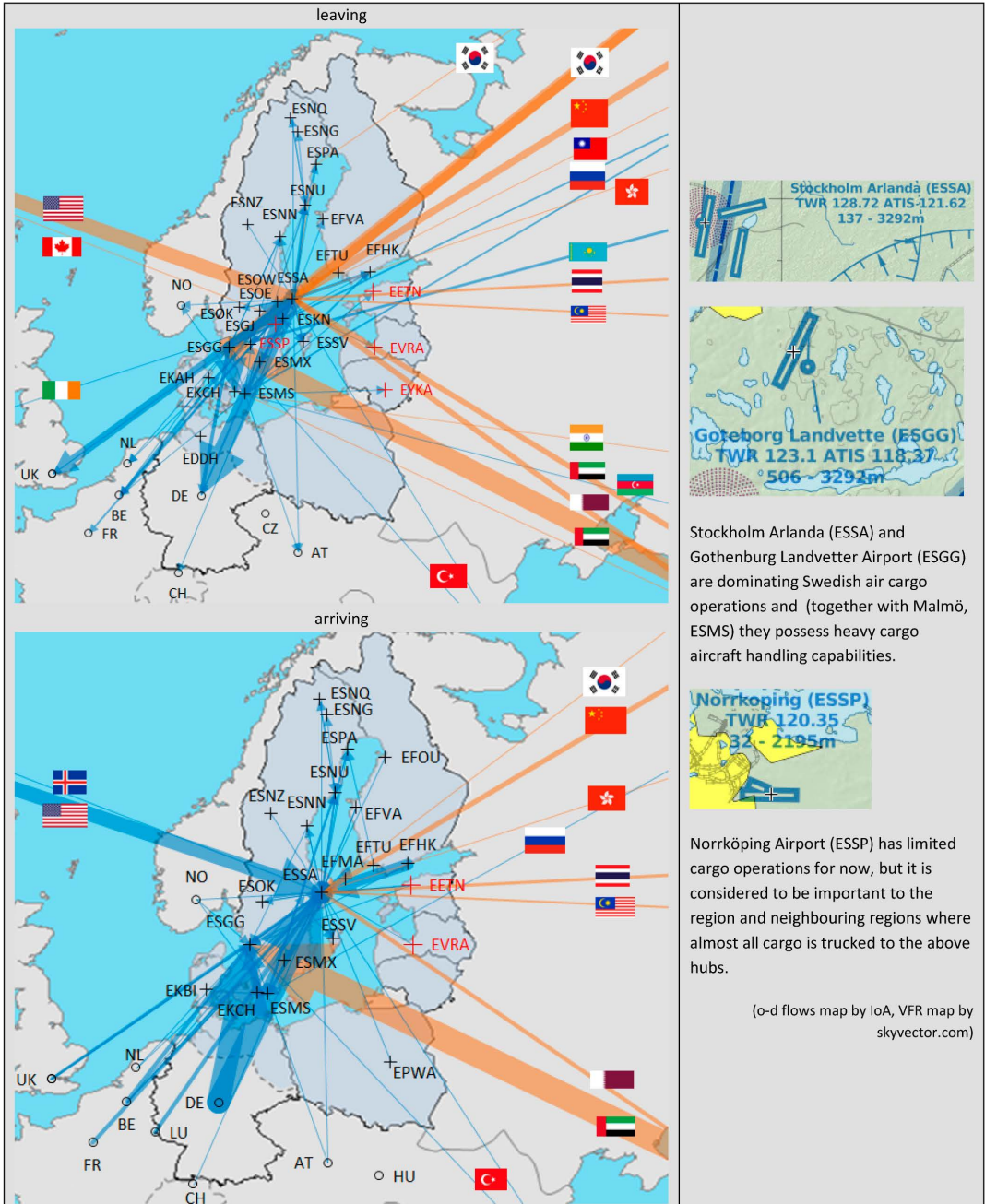
Poland



Map 9. Warsaw Chopin (EPWA) and Katowice Pyrzowice (EPKT) airports 2005-2010 activity.

⁷⁾ <http://www.lotnisko-chopina.pl/pl/lotnisko/informacje-ogolne/przepustowosc/analiza>
Przedsiębiorstwo Państwowe "Porty Lotnicze", Kompleksowa Analiza Przepustowości Portu Lotniczego im. Fryderyka Chopina w Warszawie Podsumowanie Wyników, 2011-08-09, p. 12

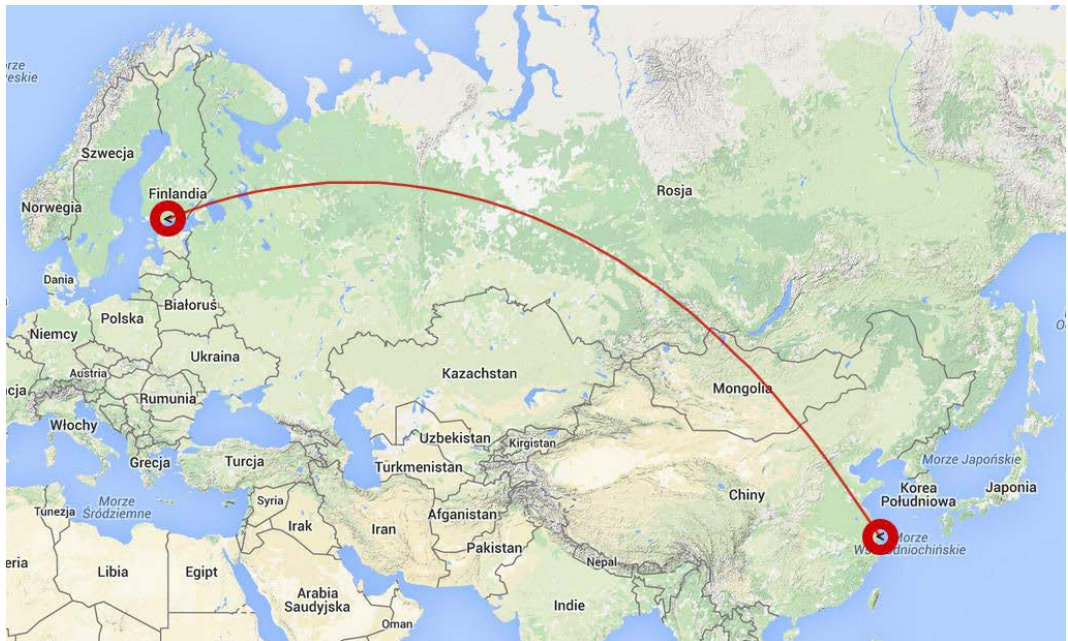
Sweden



Map 10. Swedish airports 2005-2010 activity.

4. CONCLUSION

The 2005-2010 picture of Baltic Sea Region air cargo activity clearly shows a growing importance of long-haul routes connecting BSR states and East Asian markets. A limiting factor may be the saturation of the BSR markets and no further need for more Far Eastern industrial products in such a dynamical inflow. Also old global powers system evolution initiated in 2014 influences conditions of doing business. One of the issues that could be immediately concluded looking at the map below concerns deteriorating business environment due to possible regulations of countries located en-route (e.g. airspace lock-down).



Helsinki (EFHK) – Shanghai (ZSPD) shortest route by B747F (greatcirclemapper.net)

Further flows observation and analysis performed with the scope of the Institute of Aviation⁸⁾ may bring interesting results and possess significant advisory information in terms of risk management.

SOURCES

Published papers:

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PRZEPIŁYWY LOTNICZEGO TRANSPORTU TOWAROWEGO W REGIONIE MORZA BAŁTYCKIEGO W LATACH 2005-2010

Abstrakt

Artykuł przedstawia sytuację kierunków przepływów lotniczego transportu towarowego dotyczącego Regionu Morza Bałtyckiego (BSR). W świetle najświeższych danych z 2010 roku pozycja regionu nie jest znacząca (650 000 ton) na tle głównych globalnych centrów przeładunku air cargo takich jak Hong Kong (4 miliony ton) lub Memphis, TN, USA (3,9 milionów ton). W okresie 2005-2010, najbardziej intensywny ruch do jak i z Regionu Morza Bałtyckiego zanotowano na następujących kierunkach: USA, Zjednoczone Emiraty Arabskie, Chińska Republika Ludowa i Japonia. Dane dotyczące lotniczego transportu towarowego na krótkich odcinkach ujawniły ruch w zachodniej części regionu między Szwecją, a Niemcami. Wyraźnie widoczny był jeszcze jeden odstający i znaczący przypadek – transport z Turcji do Tallina mający swój szczyt w 2008 roku. Niestety nie udało się zrozumieć powodów tego fenomenu. Być może, gdyby były dostępne bardziej szczegółowe dane dotyczące Federacji Rosyjskiej, mógłbym zaproponować wyjaśnienie. Dostęp do rosyjskich baz danych był mało prawdopodobny nawet przed osłabieniem współpracy Zachodu i Rosji w latach 2014-2015. Głębsza analiza darmowych danych publicznych jest niemożliwa, a najkrótsze trasy lotu do Azji Wschodniej mogą być zagrożone.

Słowa kluczowe: transport lotniczy, lotniczy transport towarowy, Region Morza Bałtyckiego.