The arrival of the Spanish galleons in Manila from the Pacific Ocean and their departure along the Kuroshio stream (16th and 17th centuries)

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The aim of this paper is to revisit some well-known features of the seasonal conditions and geographical incidences of (1) the yearly arrival in Manila of the galleons coming from Acapulco and (2) the first stage of their return voyage along the Kuroshio stream. It will be based on existing published data, like the well-known Blair&Robertson (BRPI), the less known Navas&Pastells (CDF), the collection of Spanish Documents of Taiwan (SIT) published by the author, and other documents from Spanish Archives. The paper will try to present the routine of these trips, and some of the nautical conditions (specially the monsoons and typhoons contingencies) as explained by sailors like Cevicos, and to revisit some particular well-known cases of shipwrecks like the ones of the Spanish galleons San Felipe (1597) and San Francisco (1609) in Japan, and Nuestra Señora de la Concepción (1638) in Marianas Islands. Finally, some conclusive ideas will focus on Taiwan as one of the last ramifications of the Acapulco-Manila route; and the fact that for the sailors was much more important the winds than the currents, which—as it seems—their knowledge was not yet totally clear.

Keywords: Spanish galleons and the Kuroshio stream, Spanish sailors in the Pacific Ocean,

The “Manila-Acapulco galleon” is one of the research topics that have attracted the attention of many researchers because the romanticism attached to the large maritime route in the world. By this name (and other ones, like The nao of Acapulco, the ship from China, etc.) is referred mainly the communication system between the Vice-kingdom of New Spain (Mexico) and the its depending colonial territory of the Philippines. The route lasted 250 years, from 1565 to 1815, crossing the Pacific Ocean in yearly bases, and heavily depending of the geographical conditions. The first trip was conducted by the Augustinian Fr. Urdaneta, although other ship of the same expedition commanded by Arellano went back to Acapulco ahead of Urdaneta, as we will explain later. This galleon brought Mexican and Peruvian silver to Manila which was exchanged in this entrepôt by Chinese silk arriving there from Fujian and Guangzhou. This route was also one of the most important ways of East-West communication especially in the 16th and 17th centuries.

The first thorough study of this maritime line is *The Manila Galleon* (Schurz 1939) that until now still is the main book of reference. Nevertheless, the main concerns of scholars have been more historical than geographical ones, and only recently some attention have been swift to the geographical information provided by the galleons (García, 2001). In the book of Schurz, particularly interesting are chapters 6 (The route) and 7 (The voyage) in which there we can find a short reference to the Kuroshio stream, saying that once the galleons were high enough, they “fell in with the eastward-flowing Kuro Siwo or Japan current and the prevailing westerlies, which propelled her across the open Pacific within a few degrees of latitude” (Schurz 1939: 185). But certainly, all the literature attached to this topic deals mainly with the winds, not with the currents.

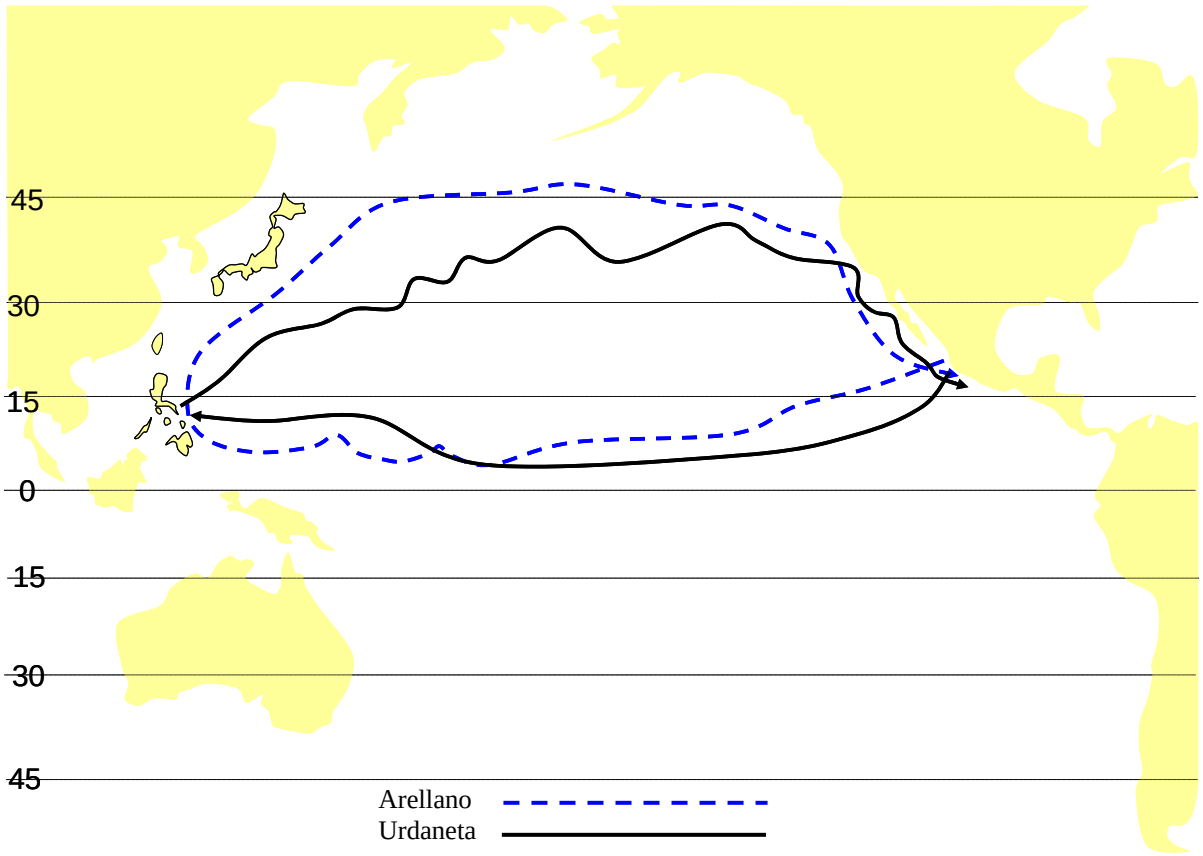


Figure 1: The first crossings of the Pacific Ocean from East to West and from West to East (1565)

1. The slow awareness of Kuroshio in the history of the Spanish navigation

As it is well known, the first time that the Spaniards traveled along the Pacific Ocean was in 1519 when Magellan crossed the southern path (28 November 1520) in order to reach the Spice islands. He reached the Ladrones Islands[1] on 6 March 1521, and Leyte (already in the Philippines) on 17 March 1521. So, it took him 109 days to cross the Pacific Ocean. Later he stayed in Cebu for few weeks exploring the area, and after receiving the friendship of some natives was killed by others. The trip was continued by Elcano, who left Cebú on 1 May 1521. After crossing Borneo, the Molucas, and the Portuguese area of influence in Indonesia (with strong opposition on their part), India, etc., he reached Spain on 21 December 1521, accomplishing the first circumnavigation along the globe. Then the problem was how to go back to Mexico from the Philippines—an area claimed by Spain, according to the treaty of Tordesillas (1494)—without crossing again through the Portuguese area in the Indic Ocean. Consequently, they organized several expeditions to explore the Pacific routes to Mexico.

The first one was commissioned to Loaisa, in 1525, but he died (30 July 1526) in the middle of the Pacific Ocean, being succeeded by Elcano, who also died two weeks later, then Salazar became the new commander. But, after reaching the Carolinas Islands, Salazar also passed away (15 September 1526). The new commander was Martín Íñiguez, who reached

[1] Magellan gave to this island the name of Vela (meaning “a sail”), but later was commonly known as “Ladrones” (meaning “thieves”) because the natives robbed a canoe of one of the galleons.

Mindanao. After few days they went to Molucas, where Íñiguez died after being poisoned. The new commander, Hernando de la Torre, decided to remain in Molucas waiting for some help. Among those waiting there was the soldier Andrés de Urdaneta (Cabrero 1989: 8), who thirty years later will lead the successful expedition going back to Mexico bordering the Kuroshio stream.

Hernan Cortés was entrusted with a new expedition by Charles V, not only for geographical discoveries but also to find out about the whereabouts of the former expedition and of possible survivors from the one of Magellan. Cortés appointed one of his cousins, Saavedra, as commander of that expedition (1527-1529). Saavedra, after reaching Guam (29 December 1527), arrived at Sarangany Island (near Mindanao) where he found two Spanish deserters of the Loaisa expedition. A typhoon prevented him from going to Cebú, and instead he went to Tidore. There he tried twice to go back to Mexico, but without success. First, he moved around Palaos Island and the Marianas, struggling against the current had brought him to the area; and, secondly, from there he tried to the north entering in the center of the ellipse, where there are no currents. So, exhausted he retreated to the Molucas, but he died at sea before reaching the islands, on 9 October 1529. Finally they decided to surrender to the Portuguese who, after some years, allowed them to go back to Spain by the India route, arriving to their final destination in 1535. Among the survivors, was still Andrés de Urdaneta.

Although it was very clear that to go to the West Pacific from New Spain was relatively easy, the trip back, or *tornaviaje*, seemed to be so difficult, that the next attempt did not come until fifteen years after Saavedra's attempt. Now the viceroy of Mexico, Mendoza, assigned his brother in law Villalobos to command that expedition (1542-1545). He arrived in 1543 in Mindanao after three months of navigation. From there he reached Leyte (or maybe Samar) who named it as Felipina (in honor of prince Philip, later king Philip II), and after a typhoon he retreated to Molucas, where he had to face the Portuguese, who—based in the treaty of Saragossa—considered now formally their territory. Villalobos died there in 1546, attended by Saint Francis Xavier. From there the expedition tried to repeat the plans of Saavedra of reaching a trip back by the Pacific, but also without success. They repeat the North route touching almost the Kuroshio, but they did not realized that this was the good way, so they went back to the Philippines, and tried again around the Molucas area, without success.

Twenty years later the final discovery expedition took place (1564-1565). Legazpi was the military commander, and he was accompanied by the above-mentioned Urdaneta, who in his second trip was an Augustinian friar and the main pilot. Legazpi. They left on 21 November 1564. On 22 January 1565 they reached Guam Island, arriving to Samar Island on 13 February1565, so after 84 days of navigation. Legazpi remained in Cebú, and Urdaneta was assigned to find the way back to Mexico. He tried the route of Villalobos but in a little higher latitude, enough to be embarked along the Kuroshio, having a successful retuned voyage, arriving in Mexico on 8 October 1565. After this trip was inaugurated a line of communication that will last for two and a half centuries. It seems that Kuroshio was known since ancient times, for example in the "kentoshi" routes (those of the Japanese envoys to China in the Tang Dynasty), although these ships did not passed along the center to the current. The trip of Urdaneta was almost one century before that the earliest mentions of the Kuroshio stream by the Japanese in provincial maps of Ryukyu, in the years 1646-47 (Kawai

1995); nevertheless, there are some doubts if Urdaneta really was conscious about the current. In fact, he was in charge of the trip but not in command of the expedition, a position assigned to the young nephew of Legazpi, Salcedo, who protected him against the possible problems that the two pilots might have posed. These two pilots, Espinosa and Rodriguez, recorded the winds independently, without interact each other, and with astonishing similarity, but it seems that they did not mention clearly any current. In the first tram they recorded a very fast sail for "San Pedro" since they reached the 30 N at the end of June. The reason was, as they said, "having the wind to starboard since we left the *Felipinas* Islands."[2]

After having mentioning that, still we have to add an important fact, which is that three months before the official trip of Urdaneta, another pilot—Alonso de Arellano—challenging Legazpi orders, made another similar trip following a more central position on the Kuroshio stream. Arellano belonged also to the Legazpi fleet, but after two weeks of the departure from México he went ahead with a lighter ship, deserting from his position in order to try the return trip in advance (Schurz 1939: 180-181). His success was neglected by history probably because of his treason and because he was suspected of using the information gathered by Urdaneta (Porras 1989: 33). Other important reason is that the description of Urdaneta's trip is recorded with many details, while the one of Arellano has more vague records.

The westbound course

In few years the general conditions of navigation were known. The westbound or the Acapulco-Manila line was determined by the winter monsoon, and as Chaunu described it: it was of "slow, but easy navigation" (Chaunu 1974: 298). In order to make the trip safe, the king ordered in 1620 that the last day for leaving the galleons from Acapulco should be on the 25th of March (Schurz 1939: 204), because it was very important to arrive before July when the typhoons start hampering access to the Philippines. It was a regular trip that without contingencies would last around three months, but, in practice, delays of one week or more in the departure were common, and the galleons have to run risks reaching the archipelago.

We can consider now the Chirino's narration of the vicissitudes of the gallons of 1601 to understand some divergences from the general picture (*CDF* IV: ccx). He said that they left Acapulco, located at 17 degrees of latitude, on 16 February. They started to go up and down looking for favorable winds, and finally they went to the 18th latitude, the standard course for the trip where they got a fresh wind. This was suitable for the galleon, but very strong for the *patache*,[3] which tried to go slowly, disturbing the trip of the galleon, which had to wait several times, or look for it in areas outside of the course. Finally, on 7 March the galleon asked the pilot of the *patache* if he would mind continuing the trip alone and he accepted.

The eastbound course

Regarding the eastbound trip—the Manila-Acapulco route—Chaunu said that was "a voyage full of complexity" (Chaunu 1974: 299). We can divide it in three parts. First, the way

[2] The Rodrigo Espinosa's diary is kept in the Archivo General de Indias of Seville (AGI Patronato 23, rollo 16). Also in the vol. 17 of the 49 volumes of copies of documents gathered by Fernández de Navarrete between 1789 and 1793, kept in the Museo Naval of Madrid (Noone, 1986: 333)

[3] The *patache*, also called frigate, *galeota* or brigantine, was a very light ship about 40 tons, without deck, low *calado*, and with rows and sail. They sailed in front of the fleet to point out some rocks, to reconnoiter possible ports or go to look for help.

to Japan it was determined by the summer monsoon, with constant winds and huge waves. At the beginning of the trip they have to deal with the difficult departure from the Philippines archipelago, through the Easter exist called Embocadero, in the center of the archipelago. Nevertheless, several times they tried the route along the Western coast of Luzon heading towards the north until the Bojeador and Engaño capes, thinking that several weeks in the trip can be saved. This was proposed by Hernando de los Ríos Coronel at the beginning of the 17th century, and during the 18th century was explored several times. For example "Governor Anda declared that a ship sailing up the west side of Luzon could climb to the twentieth parallel in two and a half or three days, as against the nearly two months sometimes required to reach the same latitude around by the Embocadero" (Schurz 1939: 183). But, as good as this route can be, it is unclear why they still preferred to follow the traditional Embocadero departure. Other problems were that if the departure was delayed it was very common for the galleon to go back to Manila (arribada) or go astray; and, if successful, it would have a very painful journey during the first months. A vivid description of these difficulties was offered by Morga when he described his own departure from the Philippines and the relatively easier way since Japan (Morga and Rizal 1961: 205). The ships tried to stay far from Japan because of the danger in navigation usually attached to the Japanese coast, which offer little possibility for a stopover. Besides, political reasons made it unadvisable. It was important to leave as soon as possible to avoid the period of baguios (typhoons) that can appear from July to September and to reach the area of the 40º parallel, in the north of Honshu Island, as early as possible. For that reason, the King ordered the governor Fajardo in 1620 that the galleons should leave Manila by the last day of June (Schurz 1939: 204), but this was very difficult because in this month the galleons from Acapulco arrived, and if they had to go back immediately to Mexico, everything should be done in a rush.

Certainly, the second part of the trip, following the parallel 40º was more relaxed, because there were no typhoons, but strong winds towards the East can make difficult the trip. In fact, the galleons will not have ideal latitude to sail; this varied "from about thirty-one to forty-four degrees, but the majority varied between the thirty second and thirty-seventh parallels" (Schurz 1939: 185). The third part, along the Pacific coast of America, before reaching Acapulco (40º-20º latitude N and 150º-130º longitude West), was a very difficult one. It was a *zona de torbellinos* (whirlwind zone) and of pirates. Already in 1587 the English pirate Thomas Escander captured the fully loaded galleon "Santa Ana" on its arrival in California, and the following year he appeared in the Philippines to look for new prey (*CDF* II: ccc-ccviii). Usually a second ship, a *patache*, was sent "in conserva" (as auxiliary and protective one). This was specially needed when the trip was becoming very long, although this ship can suffer the same contingencies that the main galleon. For example, in 1598, the "San Martin" had a long and difficult trip of six moths and 20 persons died on board, and another 20 were in the verge of death upon arrival at Acapulco, besides they could not get any help since the *patache* "San Juan" was wrecked on its way, losing all the people, cargo, etc. (*CDF* II: cccxxxvii). We can say that the average trip was near six moths (Porras 1989: 33); for example, the trip back to Mexico of Morga was 162 days; that is, five moths and one week (Morga and Rizal 1962: 205); but other ones, like the "San Gerónimo" in 1597 took only four months (132 days), as we will see later.

It is interesting also to mention that, after Urdaneta, some pilots tried to reach Acapulco passing by the Marianas Islands, but some of the cases that we know ended in shipwreck in those islands, first in 1601, when the "San Jerónimo" and "Santa Margarita" set sail; the first one was wrecked in Catanduanes, before leaving the Philippines and the second in Ladrones (*CDF* IV: ccviii-ccix). Some of the surviving persons were rescued a month later by the new incoming galleon. The second case was in 1638, when "Nuestra Señora de la Concepción", the strongest ship built in Cavite, was wrecked in those islands due to the lack of expertise of the captain.

2. About paleo-climates

The studies of Schurz 80 years ago on the Manila galleon, considering the people involved, the galleons, etc., are still very important. Recently a new approach has been made to use all the data we have to reconstruct with more detail the routine of these trips, in order to make studies of paleo-climates, but this modern studies, as well those of Schurz, heavily relied only in the Blair-Robertson collection of the documents made by American researchers upon the conquest of the Philippines as a colony. A recent multidisciplinary research made by nine scholars from Spain and USA (García and al., 2001) based on the different accounts of the galleons across the Pacific has provided a first description of the atmospheric circulation of the tropical Pacific Ocean. Although we can say that the main information refers to the Acapulco-Manila trip, not to the *tornaviaje* (the way back). They reach the following conclusions: first, that the length of the voyage during the period 1590-1750 exhibits large secular trends, for example the voyages in the middle of the seventeenth century are some 40% longer than those at the beginning or at the end of the century, and that these trends are likely produced by natural causes. Second that a series of virtual voyages constructed from modern wind data indicates that the sailing time to the Philippines depended critically on two factors: the strength of the trade winds and the position of the western Pacific monsoon trough. Consequently, Garcia and his research team conclude that most probably the atmospheric circulation of the western Pacific underwent large, multi-decadal fluctuations during the seventeenth century. [4]

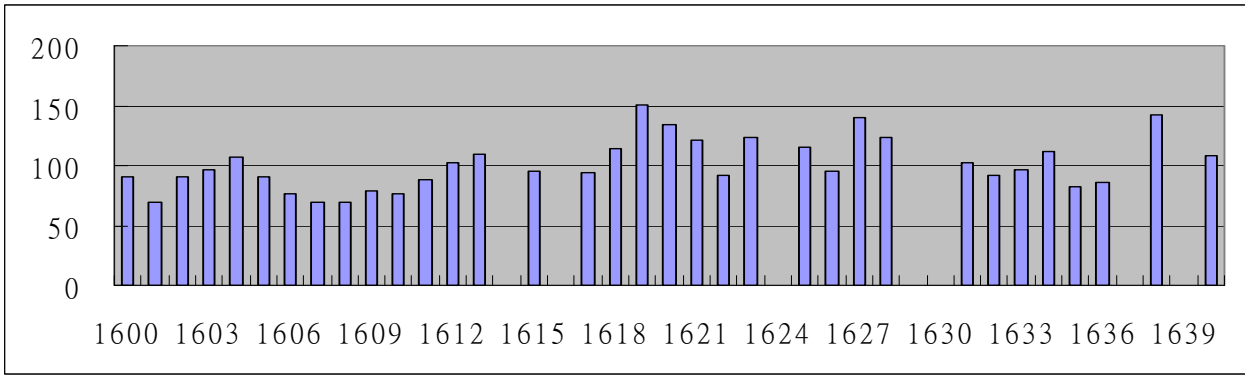
In our opinion, the series of García have tried to use different documents, but still there are many holes in the reconstruction, which—unfortunately for our study—mainly focuses in the Acapulco-Manila direction, which is the most regular voyage, ignoring the return trip to Acapulco along the Kuroshio. There must be several reasons for that, first of all, the trip to Acapulco encountered many problems. As Chaunu said, "Since 1570 to 1800, when leaving Manila only there is one possibility, out of two, of reaching Acapulco. So, the success of Urdaneta, was limited" (Chaunu 1974: 301). On the other hand, the sources have been gathered from the Manila officers point of view, based in the arrival of the galleons and their departure, not in the arrival in Mexico. For the officers in the Philippines the trip from

[4] The team was composed by Rolando R. García, National Center for Atmospheric Research, Boulder (Colorado); Henry F. Díaz, Climate Diagnostics Center, NOAA, Boulder (Colorado); Ricardo García Herrera , Universidad Complutense (Madrid); Jon Eischeid, Climate Diagnostics Center, NOAA, Boulder (Colorado); María del Rosario Prieto, CRICYT, (Mendoza, Argentina); Emiliano Hernández, Universidad Complutense (Madrid); Luis Gimeno, Universidad de Vigo (Orense, Spain); Francisco Rubio Durán and Ana María Bascary**,** Universidad de Sevilla (Seville, Spain).

Acapulco was much more important, since there was coming the *situado* (or silver to pay their salary and to cover the needs of the colony); on the other hand, the second part was much more important for the common citizens of Manila who had invested in the Chinese silk to be sold in Acapulco.

In any case, observing the data of the annex (elaborated mainly from the data of García, and selecting only years 1600-1648, those of the Dutch wars, and including those of the Spanish presence in Taiwan, 1626-1642), we can precise that in normal circumstances the Eastbound trip lasted from 85 days to 110.[5] Also, we can say that the same galleon, in similar circumstances (leaving at the same time, etc.), like in the case of galleon "San Luis", the days needed were quite similar. But we can still observe more details if we put that data in a graph: surprisingly there are big variations along the years, but not in succeeding ones. In other words, the sinuosity of the graph might reveal the existence of a pattern:

Duration in days of the eastbound trip



Certainly, it seems that the galleons navigation conditions depends very much on structural climatic changes. And this opens a possibility of research on how the natural conditions might have affected the course of history. For example we can see that the period of the Spaniards in Taiwan (1626-1642) coincides with a moment of longer communications, and consequently with the later arrival of the galleons. At the same time, we can see that the year the king issued clear instructions to governor Fajardo of the most convenient day for the departure of the galleons (1620) coincides with an inflexion in the length of the trip. To what extent this instruction created a positive or negative effect is a matter that requires more research.

3. Shipwrecks in Japan

To understand the shipwrecks in Japan we have to approach this segment of communication more closely. In fact, during the 250 years of the galleon trade, few shipwrecks happened in the dangerous East coast of Japan, probably because sailors were prudent enough to go as far as possible (but staying in the edge of the Kuroshio), or because they were looking for the alternative route towards the Marianas at the initial stage of the trip. This might explained also the reason why during the 16 years of Spanish stay in northern Taiwan the galleons never made a single stopover in Jilong. The general understanding or the timing of the trips was that the ships left towards the north at the beginning of the southern monsoon season, still with weak winds, but before the beginning of the immediate typhoon season.

[5] When making this figure, the very extreme data has not been taken into consideration.

The Nao of Macao (1582)

We can start mentioning the wrecked of the Nao (yearly ship) from Macao of 1582 that had in northern Formosa on its way to Japan that generated the first recorded Western contact with Taiwan. The Nao left Macao a little late, on the 6th of July, meaning that, even the southern monsoon at that time was stronger, the risk of meeting a typhoon was also higher. The record of the trip made by a Jesuit onboard said that the winds were unfavorable, but, nevertheless slowly brought then 30 to 40 leagues off Macao, but an unexpected strong easterly wind (uncommon for the season) brought them back near to Macao. At this point it was 11th July. Probably the losing of these 5 days made them get caught by a typhoon that almost wrecked the ship, but in 24 hours the storm abated and they started to feel clearly the monsoon, "a very cool wind that enabled us to continue our journey to Japan on the 12th" (SIT: 2), that helped them cover 120 leagues in four days. But on that day, probably by mistake of the pilot, the ship went aground in "Liqueo Pequeno" (Northern Taiwan). They stayed several months in Taiwan making a new boat, with the remains of the previous one. They hurried to finish at least during the end of the northern monsoon season. They were ready by the end of September. Then, on the last day of September the wind was cool and they risked the trip even though the wind was getting stronger, and the waves huge. The monsoon happened to be so strong, but gentle at the same time, that in 8 days they reached Macao. One explanation of that is that the southern bound ships were faster than the opposite direction. According to Mulder, the communication from Tayouan to Hirado, during the SW monsoon was between 29 to 67 days, with an average of 55 nautical miles per day, while from Hirado to Taiwan during the NE monsoon was much faster, between 5 to 16 days, which is an average of 82 nautical miles per day (Mulder: 34).

The "San Felipe" (1596)

Regarding the Spanish shipwrecks in Japan it is important to mention that beyond the geographical issue they had an important political impact in the Spanish-Japanese relations. [6]As it is known, the arrival of the Spaniards in Manila attracted Chinese mainly from Fujian that established a growing colony. But also in the last decade of the 16th century a smaller colony of Japanese started to take shape. In 1593, it was around 300 persons, and two years later 1.000. One of the first descriptions was made by Antonio de Morga in his *Sucesos de las Islas Filipinas*. His geographical data was that "every year some Japanese ships from Nagasaki use the northern winds of the end of October. They arrived in Manila in the end of March… and ... these ships returned to Japan in the time of the gales, around June and July. But the growing of these relations was stopped after the so-called "San Felipe" incident[7]. This galleon left Manila on 12 July 1596. These twelve days of delay after the official date of

[6] Among different studies of the diplomatic relations and maritime incidents between Japan and Spain (1592-1617) see W. Michael Mathes, "A quarter century of Trans-Pacific diplomacy: New Spain and Japan, 1592-1617", *Journal of Asian History*, No. 24, Otto Harrassowitz, Wiesbaden, pp. 1-29; also in Eikichi Hayashiya. "El Japón en la época de los descubrimientos", *Cuadernos Americanos*, No. 36, UNAM, 1992, pp. 20-30; Navas&Pastells, Vol. IV, xxxviii-xlv.

[7] See Juan Pobre de Zamora, *Historia de la pérdida y descubrimiento del Galeón "San Felipe"*, Institución Gran Duque de Alba, Excma. Diputación Prov. de Ávila, 1997; also in Ribadeneira, *Op. cit.*, pp. 418-424.

departure might have the ship caused to be hit by two typhoons. The captain decided to go to Japan to make a stopover, but a third typhoon hit the galleon for one day and a half.

After that, on 5 October, started the last part of the trip under the influence of the Kuroshio stream. The "San Felipe" found itself without any sail, but moving slowly straight to Japan. They considered this was a miracle, and finally they found the land in the latitude of Meaco (Kyoto), but the landing was not so easy. Morga commented: "Even by daylight they made efforts to reach the land as at night when the wind subsided, the current drifted them farther away" (Morga and Rizal 1962: 73). They were afraid of the possibility of been pushed straight to rocks because the ship was out of control, but they reached safely the Tosa Bay in the Shikoku lands, with the help of the Japanese who—continue Morga—"where acting by bad faith, and took the vessel in tow to the port and directed it to a shallow place, were the vessel got stranded."[8] But, this matter became an unfortunate episode, since all the misunderstandings attached to it ended in the first main Christian persecution in Japan (1597).

Besides the "San Felipe", another ship, the "San Gerónimo", left Manila one month later, on 10 August 1596. [9] Everything was done under the experienced pilot Fernández de Quirós, but "as they had started so late, they 'had to go through incredible hardships'; and that finally they reached Acapulco on 11 December", [10] accounting for 132 days. After knowing this in Manila they were more careful in their timing, advancing the departure, at least of the smaller ships, to May. For example, in a report made by Franciscan Burguillos of a trip to Japan in 1601,[11] he said that they left Manila on 26 May, and he arrived to Hirado on the day of "Saint Peter and Saint Paul" (29 June), so, after a month. Later he said that he went back to Manila at the end of February 1602, and they arrived to Manila with a good voyage (probably meaning in a short time). He also said that the next ships to Japan were sent by May 1602.

The "Espíritu Santo" (1603)

In 1603 the traveling conditions of the story of the "San Felipe" was repeated again, this time with the galleon "Espíritu Santo" which arrived wretched to the port of Hirado. But, the political repercussion was far from the fate of the "San Felipe", since the new galleon commander, Lope de Ulloa, was aware of the details of the misfortune of the "San Felipe" and he acted in a very different way, watching closely the help provided by the Japanese (Schurz 1939: 105).

The "San Francisco" (1609)

One of the first clear descriptions of the southern monsoon leading ships to Japan comes from Juan Cevicos, a sailor that before he become a priest, was piloting galleons in the route Manila-Japan from 1610 to 1622, and, as he said, everything started when he was the captain and the *maestre* of galleon "San Francisco" on his way to Acapulco (SIT: 167), this ship was

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[8] Morga, Sucesos…, pp. 72-73.

[9] Antonio de Morga, *Sucesos de las Islas Filipinas*: "When Governor Don Francisco Tello entered upon his office, in the year ninety-six, he found the 'San Geronymo,' … preparing for the voyage in the port of Cabite. He also found there the galleon 'San Felipe' laden with Filipinas goods, preparing to make its voyage to Nueva España. … Although the 'San Geronymo' sailed last, it made the voyage, reaching Nueva España at the end of the said year of ninety-six". Translation in *BRPI*, v. 15, pp. 116-122.

[10] *The Voyages of Pedro Fernández de Quirós*, Hakluyt Society, 1904.

[11] Biblioteca del Palacio de Oriente (Madrid): Manuscritos II, legajo 767, ff. 1-14.

wrecked, and he went back to Manila. In a discourse that he wrote in 1628 (*SIT*, pp. 54-56) he dealt, among different problems, with the blockades of Dutch ships in Manila in this decade, offering the thesis that even this danger could be serious in Manila but it was under control, besides the Dutch represented little danger in the Manila-Japan route, because they were expected to approach the Philippines from October to March, and lie in wait for the Chinese junks from April to May. They would then return to the South (Java) to avoid the period of furious gales starting in June. On the other hand, the ships bound to Japan from Manila would leave at the end of June or in July, the moment when the Dutch were not expected to be around.

Certainly, on 25 July of 1609, three galleons left the port of Cavite, the "San Antonio", the "Santa Ana" and the "San Francisco". The three of them were dispersed and pushed by strong winds to the Japanese coast, and each had a different fate. The "San Antonio" arrived into Nagasaki and later was able to continue to Acapulco where it arrived on June 1610. The "Santa Ana" went to Bungo, and the galleon "San Francisco" carrying the last governor of the Philippines, Rodrigo de Vivero y Velasco, on his way back to Acapulco landed on the coast of Kazusa (Kanto), around the parallel of 35.5 degrees, on 30 September 1609. In the report of the wrecked made by the Jesuit Gregorio López, in his annual letter about the events of the Philippines, the Kuroshio current is referred only indirectly. He said that some tried to put the ship back to Manila, "but this was without effect, and they proceed on their way [to Japan] with some storms, … it was necessary to work the pumps continually … Finally at the end of this struggle, they were wrecked on the coast of the kingdom of Quantu" (BRPI 17: 135).

The stay of Vivero in Japan and the historical implications has been the subject of many studies,[12] since this situation created a diplomatic discussion involving the possible Japanese navigation to Mexico (Borao 2005). Vivero has been interim governor for two years (1608-1609), during which time he tried to improve relations with the Ieyasu, after proceed with the deportation of some Japanese. Ieyasu responded favorable to the petition; and soon later he found in a very good position to request commercial dealings to Vivero after the "San Francisco" galleon was wrecked in Japan, and Vivero was obliged to remain there for a year (since September 1609 to August 1610), and Ieyasu took advantage to negotiate with the ex-governor to increase the trade with Manila and his participation in the silver trade with New Spain. Ieyasu offered Vivero a Western ship made by the Englishman and shogun's advisor William Adams to go to Mexico for the embassy. He accepted the offer as the "Santa Ana" was in not good conditions, and the British-Japanese built galleon, was renamed as "San Buenaventura". He left on 1 August 1610, accompanied by 23 Japanese, and arrived into Matanchel (California) on 27 October, after only 88 days.

Sebastián Vizcaíno (1613)

Vivero reached Mexico in November 1619 and convinced the Viceroy of Mexico to send a formal embassy to Japan to exploit the silver mines. The Viceroy sent word to Spain but at the

[12] See Josef Franz Schütte, "Don Rodrigo de Vivero de Velasco y Sebastián Vizcaíno en Japón (1609-1610)", and Arcadio Schwade, "Las primeras relaciones entre Japón y México (1609-1616)", both articles in *La expansión Hispanoamericana en Asia, siglos XVI y XVII*, México, FCE, pp. 96-122 and 123-133 respectively.

same time, in March 1611, sent Sebastián Vizcaino to Japan to send back the Japanese that had gone with Velasco, and also to discover the mythical islands "Rich in Silver" and "Rich in Gold", because it was believed that they were on the way to Japan, and they might serve as stopover for the Manila galleon. [13] Vizcaíno arrived in Japan on June 1611 but without discovering such islands. In Japan he visited several harbors like Osaka, Miyako, etc., and he drew different maps. Finally the negotiations failed, as well as a second attempt for these fabulous islands.[14] His situation got worse because he returned to Japan in 1612 and was shipwrecked. He was allowed to build the galleon "San Juan Bautista" in 1613 with the help of the Japanese, as a result the first Western-style warship was made in Japan[15] and it crossed the Pacific in 1614. This galleon was also famous because transported a Japanese embassy of 180 people headed by Hasekura and the Franciscan Luis Sotelo, to Mexico and, some of them, even to Spain and Rome, which they reached in 1615. They arrived back in Japan in 1624.

The "Nuestra Señora de la Concepción" (1638)

The "Nuestra Señora de la Concepción" was one of the largest ships of that time (140-160 feet long and displacing some 2,000 tons, with a loaded draft of between 18 and 22 feet). This galleon on 20 September 1638, amid bad weather was wrecked fully loaded at the southernmost point of Saipan (Northern Mariana Islands). One of the reasons was the inexperience of her commander, the 22 or 24 year old nephew of the Philippines Governor General, Sebastián Hurtado de Corcuera, who cannot control a mutiny among the officers just when the galleon was breached in severe weather.[16] The galleon took the alterative direct way of the 33 degrees to go to Mexico, but this proved to be fatal for her (Mathers 1993: 29). Nevertheless, that route—so far from the Kuroshio—was tempting for the galleons as it happened with the "Nuestra Señora de Covadonga" in 1743, a galleon that was captured by the English admiral Anson and his memoirs became a bestseller (Torres 2004) with many translated editions illustrating the Spanish galleon itinerary with great detail.[17]

Figure 2:
Artist's modern rendition of galleon "La Concepcion" on the verge of her shipwreck in Saipan Island, in 1638. See Mathers, W. M.; Nancy Shaw. *Treasure of the Concepción*, Hong Long: APA Publications, 1993.

[13] See Gil, *Mitos y utopías...*, pp. 142-147.
[14] See W. Michael Mathers, *Sebastián Vizcaíno y la expansión española en el océano Pacífico, 1580-1630. Documento para la demarcación comercial de California, 1583-1632*, 2 vols., 1965.
[15] The Western galleons were known as Kuro-Fune (black ships) or Nanban-Sen (Southern Barbarian ships).
[16] *National Geographic*, Vol. 178 No. 3 September 1990.
[17] A copy of 1749 of the Anson's book can be seen in the Research Library of the National Taiwan University.

Taiwan and the Manila-Acapulco line

What was the role of Taiwan during the years of Spanish presence inside this long route? It was just a small branch related with the Manila entrepôt. Manila was the center of exchange of the Mexican silver and the Chinese silk and other Philippine and South East Asia products. For some contemporaries one of the justifications of the Spanish presence in Taiwan was to an alternative place of purchasing Chinese silk, which after being bought in Isla Hermosa was sent to Manila. This only happened twice in 1634 and 1635, when two important expeditions of merchants took place. On the other hand, regular Mexican silver was sent to Isla Hermosa to pay the soldiers and the officers, an important part of which was spent locally, either with natives or Chinese. In all these contacts, the relations were made not through the galleons but through small aid ships, called "socorros", that usually arrived twice a year, in spring and at the end of summer, after the galleon from Acapulco had arrived in Manila, with fresh silver and other *bastimentos* (provisions), a matter that I have studied in other place (Borao, 2003).

Regarding the eastbound trip, the galleons passed relatively near Taiwan, but never stopped there, even in the plans of the conquest of the island someone suggested the service that the port of Quelang might provide in this first lag of the trip, but we think this was a more rhetorical reason than practical one. Other reports suggested later that the harbor was not deep enough for the docking of the galleon, something that looks an exaggeration. We think that there was two other important reasons; first, Quelang was so near to the Philippines that was not worth considering such stopover, besides it will be an important deviation and a great waste of time in that six months voyage. Second, it was probably safer to move along the edge of the stream, otherwise they might have been wrecked on the Japanese coast.

Finally, did the pilots of the galleons were fully aware of the existence of the Kuroshio stream? As Baert said, the Spanish pilots entered in the Pacific Ocean with the only experience provided by the Atlantic winds, which they found probably very soon that there were three similarities. First, the trade winds from the NW in the northern hemisphere (SE in the southern hemisphere) that they blow until the 30 degrees of latitude. Second, the existence of areas without winds around the Equator and the high pressures. Third, the strong Western winds around the 40 degrees of latitude (Baert, 1992). Probably, they were comfortable after discovering such similarities and did no pay too much attention to the currents they might had observed, because they relied mainly in the efficiency of the winds for their sail. Besides, as they had experienced in the coast of Florida, not always the winds had a relation with regular streams, on the contrary, they thought that both work sometimes in a different way.[18]

[18] I am not an expert in oceanographic currents, but it seems that is common for oceanographers that the parallelism among winds and currents do not explain fully the circulation, because some questions remain unanswered, like why are strong currents found offshore of east coasts but not offshore of west coasts. The foundations for a modern theory of ocean circulation rely in some theories made around the IIWW. Sverdrup showed in 1947 that the circulation in the upper kilometer or so of the ocean is directly related to the curl of the wind stress. One year later Stommel mentioned that the circulation in oceanic gyres is asymmetric because the Coriolis force varies with latitude. And finally, in 1950, Munk added the eddy viscosity as other factor (http://oceanword.tamu.edu).

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Annex: Frequency of the galleons (1600-1648)

Source: García, Rolando R., et alt.,"Atmospheric Circulation Changes..." (2001)

		Acapulco	→ Manila	days		Manila	→ Acapulco	days
1600	Santa Potenciana							
	Santa Catalina	16-Feb						
	Rosario	22-Feb						
	Santa Potenciana	25-Mar	24-Jun	**91**				
	Santiaguillo (patache)	25-Mar						
					San Jerónimo		wrecked (Feb.)	
					Santa Margarita		wrecked (Feb.)	
					San Juan	unknown	unknown	
1601	Santo Tomás	19-Feb	30-Apr	70 wr				
	San Antonio (patache)	19-Feb	19-May					
	Santa Catalina	unknown	unknown					
1602	N. S. de los Remedios	4-Feb	18-Nov	287				
	Santa Potenciana	4-Feb	18-Nov	287				
	San Ildefonso	4-Feb	18-Nov	287				
	N. S. de Begoña	4-Feb	18-Nov	287				
	N. S. de la Antigua	4-Feb	1-May	86				
	San Francisco (possible)	4-Feb	10-May	**95**				
1603	San Antonio de Padua	18-Mar	24-Jun	**98**				
	N. S. del Rosario	18-Mar	22-Jun	**96**				
					N. S. de la Antigua	4-Jul		
					San Alfonso	5-Jul		
					Espiritu Santo	10-Jul	19-Dec	162
					Jesus Maria	10-Jul	19-Dec	162
					N. S. de los Remedios	went back		
					San Antonio	unknown	lost	
1604	**Espíritu Santo**	16-Mar	3-Jul	109		11-Jul	early 1605	
	San Diego	16-Mar	9-Jul	115				
	Nuestra Señora de la O	November						
	Jesús María							
					N. S. de los Remedios	went back		
					San Antonio	unknown	lost	
1605	San Ildefonso	22-Mar	17-Jun	**87**				
	Jesús María	25-Mar	27-Jun	**94**				
1606	**Espíritu Santo**	25-Feb	12-May	**76**		July		
	Santa Ana	unknown	12-Aug					
	N. S. de la Antigua	unknown	12-Aug					
1607	San Pedro	31-Mar	8-Jun	69				
	San Pablo	31-Mar	8-Jun	69				
	Santiago	31-Mar	18-Jun	**79**				
1608	Santa Ana	15-Mar	15-Jun	**92**				
	San Francisco	15-Mar	15-Jun	**92**				
	N. S. de los Remedios	unknown						
1609	**San Andrés**	16-Jan	8-Apr	82				
	Espíritu Santo	16-Jan	8-Apr	82				
	San Pedro	16-Jan	8-Apr	82				
	Nuestra Señora de la O	16-Jan	8-Apr	82				
					San Andrés	July	arrived	
					Santa Ana	July	wrecked	
					San Francisco	July	Japan	

1610	**San Andrés**	25-Mar	10-Jun	77			
	San Francisco Javier	25-Mar	10-Jun	77			
					San Juan Bautista	12-Jul	arrived
1611	San Juan Bautista	24-Mar	20-Jun	88			
	Santa Ana	24-Mar	20-Jun	88			
	San Buenaventura	24-Mar	20-Jun	88			
1612	N. S. de Guadalupe	30-Mar	10-Jul	102			
	San Pedro	30-Mar	10-Jul	102			
					patache		
1613	San Pedro	12-Mar	27-May	76			
	Santo Angel de la Guarda	26-Mar	2-Aug	129			
	San Andrés	29-Mar	31-Jul	124			
					Santo Angel de la Guarda		5-Feb
					San Andrés		5-Jan
1614							
1615	**San Andrés**	27-Mar	20-Jun	85			
	Santiago	27-Mar	20-Jun	85			
	San José	27-Mar	26-Jul	122			
	Santa Margarita	27-Mar	22-Jun	87			
	San Antonio	31-Oct					
					San Antonio		10-Jan
1616	San Antonio						
	Santo Angel de la Guarda	1-Apr	24-Nov	238			
	N. S. de los Remedios	26-Mar	lost				
					Santisima Trinidad		
1617	San Geronimo	27-Mar	30-Jun	94			
					two ships	back to port	
1618	**San Andrés**	31-Mar	31-Jul	122			
	San Juan Bautista	31-Mar	5-Jul	96			
	Angel de la Guarda	1-Apr	21-Aug	142			
	Espiritu Santo	2-Apr	5-Jul	94			
					Espiritu Santo		December
					Other		December
1619	**San Andrés**	20-Mar	4-Jul	106			
	San Geronimo	20-Mar	4-Jul	106			
1620	San Nicolás	4-Apr	16-Aug	134			
	Rosario (patache)	4-Apr	16-Aug	134			
					N. S. de la Vida	sank in Mindoro	
					other ship	put back	
1621	**San Andrés**	6-Apr	5-Aug	121			
	San Nicolas	6-Apr	lost				
1622	Santiago	25-Mar	25-Jun	92			
	San Jacinto	16-Sep	23-Nov	**68**			
	N. S. del Rosario	16-Sep	26-Nov	**71**			
	San Juan Bautista	30-Sep	30-Nov	**62**			
					one ship		
					another ship	sank	
1623	**San Andrés**	20-Mar	16-Jul	118			
	N. S. de Atocha	23-Mar	31-Jul	130			
1624	**San Luis**	26-Mar	arrived				
	N. S. del Rosario	27-Mar					
1625	N. S. de Atocha	5-Apr	29-Jul	115			
	Santisima Trinidad	5-Apr	29-Jul	115			
1626	San Ignacio		29-Jun				
	San Jacinto		29-Jun				
	San Raimundo	26-Mar	29-Jun	95			
	San Luis	26-Mar	29-Jun	95			

1627	**San Luis**	25-Mar					
	San Ignacio	4-Apr	16-Sep	165			
	San Jacinto	4-Apr	27-Jul	114			
					more than one ship		
1628	San Raimundo	3-Apr	3-Aug	122			
	San Luis	3-Apr	4-Aug	123			
	San Ignacio	3-Apr	7-Aug	126			
1629	San Ignacio	29-Mar	July				
	San Jacinto	29-Mar	July				
					San Juan	4-Aug	Dec. ?
					other	4-Aug	arribada
1630	San Juan Bautista		14-Jul				
	two small vessels		14-Jul				
					one ship		July 1631
					another ship		Aug. 1631
1631	San Francisco	4-Apr	1-Jul	88			
	San Juan Evangelista	4-Apr	28-Jul	115			
					S. M. Magdalena	capsized in Cavite	
					Santa Margarita	returned	
1632	**San Luis**	22-Feb	25-May	92			
	San Raimundo	23-Feb	26-May	92			
1633	**San Luis**	3-Apr	10-Jul	98			
	S. M. Magdalena	5-Apr	10-Jul	96			
1634	**San Raimundo**	30-Mar	20-Jul	112			
	Concepción	30-Mar					
1635	N. S. de la Concepción	3-Apr	23-Jun	81			
	San Luis	3-Apr	25-Jun	83			
1636	San Nicolás	4-Apr	29-Jun	86			
	San Ambrosio	4-Apr	29-Jun	86			
1637		none	none				
					San Juan Bautista	24-Aug	arrived
1638	San Ambrosio		19-Aug				
	San Raimundo	30-Mar	19-Aug	142			
					San Ambrosio	August	wrecked
					Concepcion	August	wrecked
1639	N. S. de la Concepción	9-Apr	5-Aug				
	San Ambrosio	9-Apr	lost in Cagayan				
					Concepcion (different)	7-Aug	
1640	N. S. de la Concepción	30-Mar	16-Jul	108			
1641	San Juan Bautista	30-Mar	August				
1642	**San Luis**	3-Apr	Jul-Aug				
1643	N. S. de la Concepción	31-Mar	7-Jul	98			
	N. S. del Rosario	31-Mar	7-Jul	98			
1644	**San Luis**	29-Mar	4-Aug	128			
					Encarnación		
					Rosario		
1645	N. S. Encarnación	5-Apr	July				
	Rosario	5-Apr	July				
1646	**San Luis**	3-Apr	25-Jul	113			
	N. S. Encarnación	3-Apr					
1647							
1648	Buen Jesús (patache)	5-Apr	July				
					San Diego	1-May	