ORIGINAL PAPER

Simulation of ocean surface temperature based on audio signal collection and accuracy of trade English translation

Jiang Zhihao[1]

Abstract

This article is based on TVP5146M2 and TLV320AIC3101 codec chips, combined with the current development and application direction of Da Vinci digital image-processing technology, adapted from Da Vinci TMS320DM365 series multimedia processor company, the company that designed a set of analog system audio signals collection. The design of the system hardware circuit mainly includes a video acquisition module, an audio signal acquisition module, a power management module, a serial port fault diagnosis module, and an Ethernet communication module. Next, this article uses 24 historical CMIP5 test data to examine the differences in the ocean surface response simulated in different solar peak/valley year models. Finally, in order to verify the influence of the solar year constraint forcing, the temperature simulation control test and the CESM-LME solar sensitivity test are used to evaluate the anomalous response of the ocean surface to the solar peak/valley year during strong periods. Finally, this article conducts research and discusses the accuracy of trade English translation. Business English is a method of cross-cultural communication, and understanding bilingual culture is sometimes more important than bilingualism itself. However, the scope of business English is much broader than ordinary English and contains a lot of information. Translators can use appropriate skills to correctly translate the source language into English according to business characteristics. The translator's level of translation will also be affected by many negative factors. Only by working harder to overcome and understand how to use translation skills can you give full play to your talents, show yourself, and realize the value of the translator.

Keywords Audio signal acquisition, · Ocean surface, · Temperature simulation, · Trade English translation

Introduction

With the rapid development of digital computers and multi-media technology, as well as the rapid development of computerization and industrialization, digital signal processing technology has been widely used in various fields. In the audio signal acquisition research, the traditional analog audio and video signals are digitized and analyzed to improve and evaluate the signal quality or display them on different display devices. It has also become a market demand. Whether it is a security surveillance system or a real-time video call that is

almost fully integrated with communication technology, the requirements for image quality and audio clarity in video capture are increasing or even higher. At the same time, the audio signal acquisition system is developing rapidly in the direction of intelligence and networking. By testing the analog audio signal acquisition system described in this article, the results show that the analog audio signal acquisition system can supplement the standard PAL/NTSC, CVBS and S-Video formats, and can be used in various video surveillance equipment (Leong et al. 2019). Therefore, this article introduces temperature simulations during the strong and weak periods of the day, and calculates the combination of different climate elements in the high and low years, respectively. During the period of high solar radiation, the characteristics of the sea temperature field, the ocean surface and the air field are consistent with the results of the reanalysis of the data, but under severe weather, the fields of different climatic elements have no essential characteristics. This further confirms the negative impact of the ocean surface on the high sea temperature in the reanalyzed data and the CMIP5 model year. Finally, this

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article focuses on the accuracy of trade English translation. In the era of economic globalization, trade English is the universal language for cross-cultural communication (Abbasi and Abbasi 2012). It is an important tool for international trade exchanges. Due to different geographical environments, cultural differences are inevitable. Various cultural factors include marketing interests, marketing terms, cultural traditions, etc. It is not easy to determine the accuracy of trade English translation and the complexity, particularity and diversity of information, and realize the value of trade English translation activities (Seth et al. 2013). However, under the influence of history, humanities, customs, traditional culture and other factors, it is not easy to achieve accurate business English translation, which needs to be controlled by translators. This article is based on familiarity with cross-cultural graphics, and uses some translation techniques to achieve the similarity of information between cultural differences (Kumar 2011). Consistent with the purpose of this article, we discussed the influence and opposing factors of trade English translation in different dimensions of the cultural field, and provided a reference for improving its translation level.

Materials and methods

Data source

This article uses the sunspot number (SSN) to identify the sun's activity. Due to the following facts, the quality of the reconstruction data of the early total solar irradiance (TSI) was poor, and the TSI observations did not accumulate enough data since the 1980s, resulting in insufficient reliability.

There are currently more than 20 main models in the world, including more than 50 models, which were assembled in the fifth stage of the coupled model comparison project (CMIP5). These models allow many international researchers to not only check the results of comparative models, but also to test improved models. Table 1 lists the related CMIP5 models.

Design of audio signal acquisition system

In this experiment, according to actual needs, circuit design, cost and development difficulty, and other specific considerations, it was decided to choose TI DaVinci series TMS320DM365 with high performance and low power consumption as the internal DSP processor of this audio and video capture signaling system. The core of the DSP processor has a powerful ARM926EJ-S processor on the chip. In addition to the video processing side (HDVICP, MJCP) of the coprocessor, it also has powerful video signal processing functions and multiple peripheral interfaces. The overall design of the system is shown in Fig. 1.

Simulation and determination of ocean surface temperature

The sea area of 150°W-90°W, 5°S-5°N is called Niño3 area, and the average sea temperature anomaly is called Niño3 index. The Niño3 index can effectively identify traditional ENSO events. Therefore, this paper uses the positive and negative Niño3 index as one of the indicators of abnormal changes in the central and eastern tropical Pacific. For the same reason, this article will use the Niño3.4 index (170°W-120°W, 5°S-5°N).

$$\frac{\partial T^{'}}{\partial t} = MC + ZA + EK + TH + NDH + TD + R \tag{1}$$

$$MC = -u\frac{\partial T^{'}}{\partial x} - v\frac{\partial T^{'}}{\partial y} - w\frac{T^{'}}{H} \tag{2}$$

$$ZA = -u^{'}\frac{\partial T}{\partial x} \tag{3}$$

$$EK = -v^{'}\frac{\partial T}{\partial y} - w^{'}\frac{\partial T}{\partial z} \tag{4}$$

$$TH = w\frac{T^{'}_{sub}}{H} \tag{5}$$

Results

Response characteristics of sea surface temperature to solar activity during observation

As shown in Fig. 2a, it shows the monthly decrease in the number of sunspots in the past 100 years. It can be seen that the number of sunspots has obvious regularity every month. On the sunspots near the peak year, the number of sunspots varies greatly, and the difference in the number of sunspots between the peak year and the trough year in a cycle is also very large. Since the value of the sunspot number fluctuates rapidly and can filter out the intensity scale and annual changes of the El Niño-Southern Oscillation (ENSO) itself, 36 consecutive months (equivalent to 3 years) have achieved 1 month of continuous sunspots for normal processing. Therefore, other weather data is used in the same way (Sharifinia et al. 2017). From the displacement of the magnitude of sunspots (Fig. 2a), it can be seen that the period of the past 11 years is the cycle of the number of sunspots. The wavelet analysis of the number of sunspots confirms that in the past 100 years, the number of sunspots permanently has an important intensity cycle of nearly 15 years. Therefore, the number of sunspots can be used as an indicator of solar pressure, which also means that the climate system of the past 100

Table 1 The CMIP5 model used in this article, its affiliated institutions, and the solar forcing used

| Serial number	Pattern name	Institution (country)	Solar forcing
1	ACCESS 1.0	CSIRO-BOM (Australia)	Lean (2000)
2	ACCESS 1.3	CSIRO-BOM (Australia)	Lean (2000)
3	BCC-CSM1.1	BCC (China)	Wang et al. (2005)
4	BCC-CSMl.l(m)	BCC (China)	Wang et al. (2005)
5	CanESM2	CCCma (Canada)	Wang et al. (2005)
6	CCSM4	NCAR (USA)	Wang et al. (2005)
7	CESM1 (BGC)	NSF-DOE-NCAR (USA)	Wang et al. (2005)
8	CESM1 (CAM5)	NSF-DOE-NCAR (USA)	Wang et al. (2005)
9	CESMl(FASTCHEM)	NSF-DOE-NCAR (USA)	Wang et al. (2005)
10	CMCC-CESM	CMCC (Italy)	Wang et al. (2005)
11	CMCC-CMS	CMCC (Italy)	Wang et al. (2005)
12	CNRM-CM5	CNRM-CERFACS (France)	Wang et al. (2005)
13	CNRM-CM5-2	CNRM-CERFACS (France)	Wang et al. (2005)
14	CSIRO-Mk3.6.0	CSIRO-QCCCE (Australia)	Wang et al. (2005)
15	FGOALS-g2	LASG-CESS (China)	Wang et al. (2005)
16	GFDL-ESM2G	NOAA-GFDL (USA)	Wang et al. (2005)
17	GISS-E2-H	NASA-GISS (USA)	Wang et al. (2005)
18	GISS-E2-R	NASA-GISS (USA)	Wang et al. (2005)

years will continue to regulate strong pressure for nearly 11 years.

Since the continuous number of sunspots after frequency filtering (Fig. 2a) clearly shows the quasi-eleven-year cycle, the year of solar activity at the peak and valley can be determined by calculating the order of sunspots by moving average, and the peak year is selected It is the peak year, and the lowest year is the valley year. From 1990 to 2004, there were 12 and a half 11 cycles in nearly 100 years. Table 2 shows the year of the selected peak (valley). The peak (valley) activity

on the day of this article focuses on the year in which the highest (lowest) number of sunspots is in a cycle after switching to the normal processing, which means that there are many years in each year and before and after (minus) the year Sunspots.

First look at how the solar radiation reaches the sea and the earth's surface in the peak year compared to the valley year. By synthesizing the map difference of the spatial distribution of the entire cloud layer in the peak year minus the valley year and the net radiation of the short solar wave reaching the top, it

Fig. 1 System overall scheme block diagram
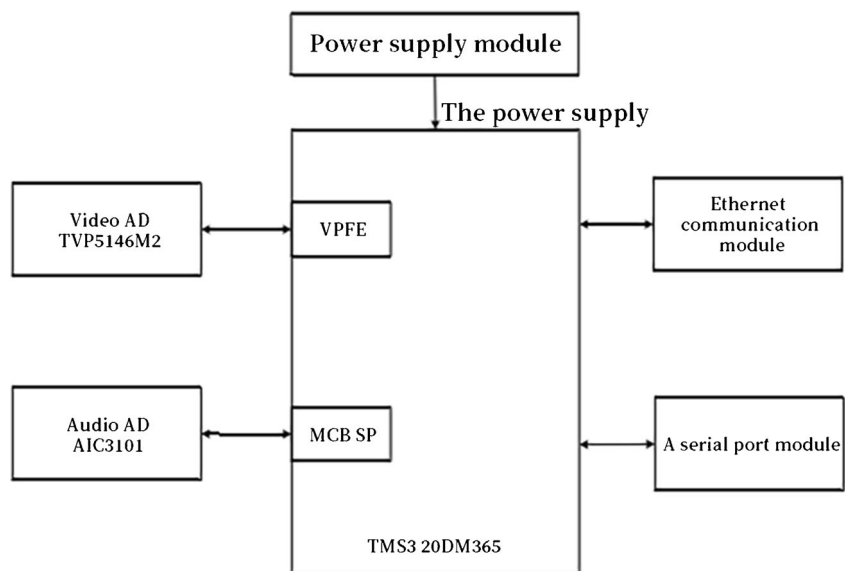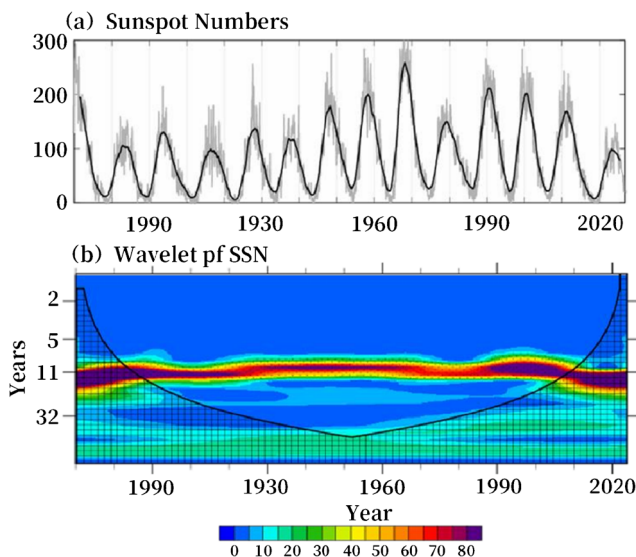
Fig. 2 The number of sunspots (SSN) observed from 1990 to 2020 (a) month-to-month detrending series (thin gray line; unit: units), and the series after 36 months (equivalent to 3 years) moving average (thick black line). (b) Wavelet analysis of sunspot number series after moving average processing

can be known that the tropical east Pacific is higher at the peak of the sunspot (Fig. 3).

Then, look at the distribution of latent heat stress in peak years compared with valley years. Consistent with Fig. 4a, because the total cloud coverage of the Central Pacific Ocean is close to 30°N, and the solar flux of short-wave radiation reaching the ocean in this area is much higher, the close to 30°N of the Central Pacific Ocean is a strong upward flow of latent heat (Fig. 4), even more water vapor is lost. However, the potential global warming of the deficit in the central and eastern equator has no clear flux characteristics.

Continue to check the characteristics of abnormal rain field, field pressure, and field wind in peak years compared with valley years. The difference between peak year elements and valley years indicates that the North Pacific has strong positive sea temperature anomalies, while the central equatorial Pacific and eastern equatorial Pacific have strong negative sea temperature anomalies (Fig. 5a). The precipitation anomaly in the area north of the equatorial Pacific is positive, while the precipitation anomaly in the area south of the equator is negative. There are abnormally strong anticyclones in the North Pacific and Northwest Pacific (120°E-180, 5°N-35°N), and there are abnormal pressure gradients on the west side near the equator and wind plane. (Fig. 5b).
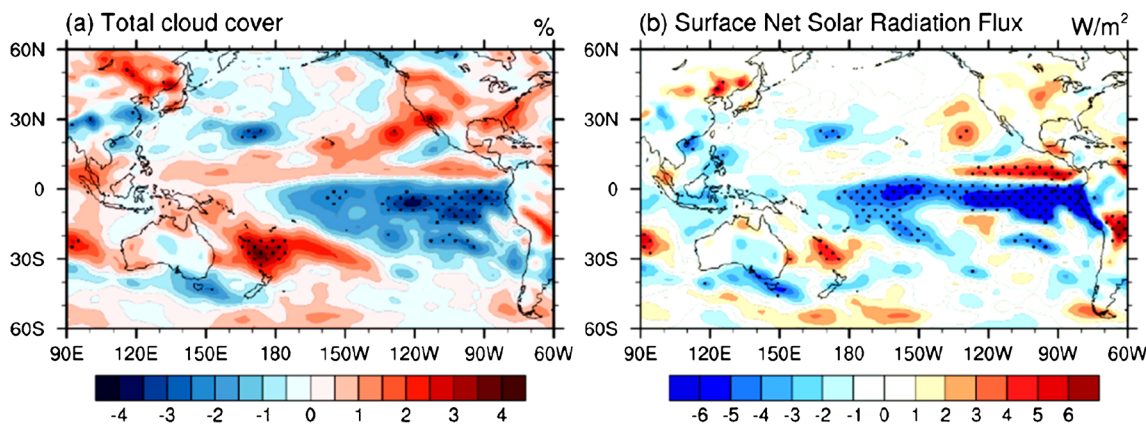
Omega's vertical movement may reflect Walker's cycle and Hadley's cycle. Compared with valley years, Omega magnetic field anomalies in high-altitude years indicate that 180–120°W has a strong water branch, which means that the Walker circulation will move inward and stabilize (Fig. 6a). The airflow near the equator is abnormally submerged, and there is a strong ascending branch close to 5°N-10°N, which means that the Hadley ascending branch strengthens and moves the poles, and the Hadley cycle is stable (Fig. 6b). According to previous findings, In the tropical convergence zone (ITCZ), large areas of precipitation will move northward (Fig. 5a).

Simulation of sea surface temperature based on multi-mode solar activity

Consistent with the time series TSI diagram (Fig. 7a), the long-term trends of the two reconstruction data in the first period are the same, but there are differences in amplitude in the initial period, but they are almost the same in the subsequent periods. Although little is known about the time series of the two reconstructed data, it can be known from the fluctuation analysis that the solar energy of the two reconstructed data is close to 11 years. The periodic signals in the last 100 years are almost the same. This chapter only records the results of wavelet analysis of reconstruction data by Wang et al. (Fig. 7b). However, even if 2 days of pressure was used in the experimental history of 30 CMIP5, the similar period of these two established TSIs was close to 11 years. The amplitude of the two will be different over a period of time, so they can be regarded as the same day in the forced driving mode.

This chapter aims to study whether La Niña-like phenomena existed in the tropical Central Pacific and Eastern Pacific that entered the year compared with CMIP5. As shown in Fig. 8, the combined graphs of the sea temperature and precipitation distribution in the rising and falling years of all 24 models are not statistically significant. It can be inferred from Fig. 8 that some models can simulate the cold signal of the eastern Pacific equator during the year-on-year and downstream entry period, but not all models can simulate it as observations. On the contrary, many models even simulate the equatorial heat signal in the Eastern Pacific (Trivedy and Goel 1986).

Therefore, this chapter considers the classification and discussion of models. In order to determine whether the CMIP5 model can simulate the negative high temperature anomalies

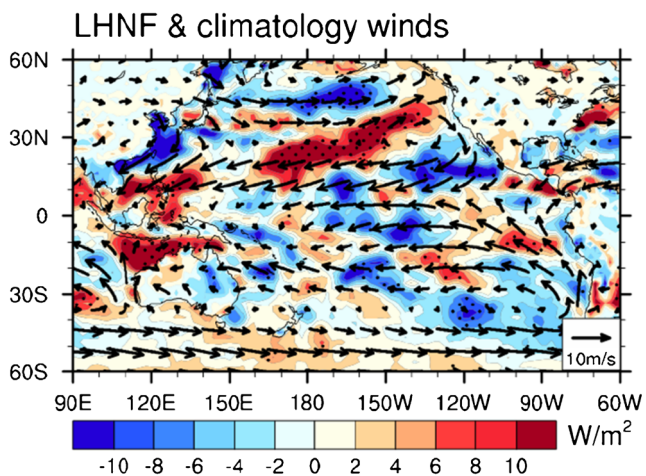| Table 2 Observed solar activity peak (valley) year selection results (the number in parentheses represents the number of peak and valley years)	Solar peak year (12)	1883, 1893, 1906, 1918, 1928, 1938, 1948, 1958, 1969, 1980, 1990, 2001
	Solar Active Valley Year (12)	1878, 1889, 1901, 1912, 1912, 1933, 1943, 1953, 1964, 1976, 1986, 1996

Fig. 3 The peak-year northern hemisphere winter (December to February, DJF) combined with the valley-year winter (a) total cloud cover (unit: %) and (b) net short-wave radiation on the surface (upward is positive; unit: W/ m²) difference. It is processed in advance through detrending and a 3-year moving average. The dotted area passes the 95% significance test

in the central Pacific and eastern tropical regions at high altitudes compared with valley years in the reanalysis of the data, this chapter specifies the criteria for classifying the model as the peak of the Niño3 composite index minus the valley year. In terms of positive and negative aspects, each model is divided into two different subsets (Table 3): the model with negative sea temperature is divided into the same way as the La Niña group (9), and the model with positive sea temperature is divided into two different subsets. Divided into the same group of El Niño (15). This chapter believes that the model that simulates the La Niña event is correct. Then, in Chapter 3, we analyzed the two feedback processes of the "bottom-up" mechanism (Agarwal and Kumar 1973). We discussed the reasons for the different response results of the climate system under strong solar pressure simulated by two different subsets.
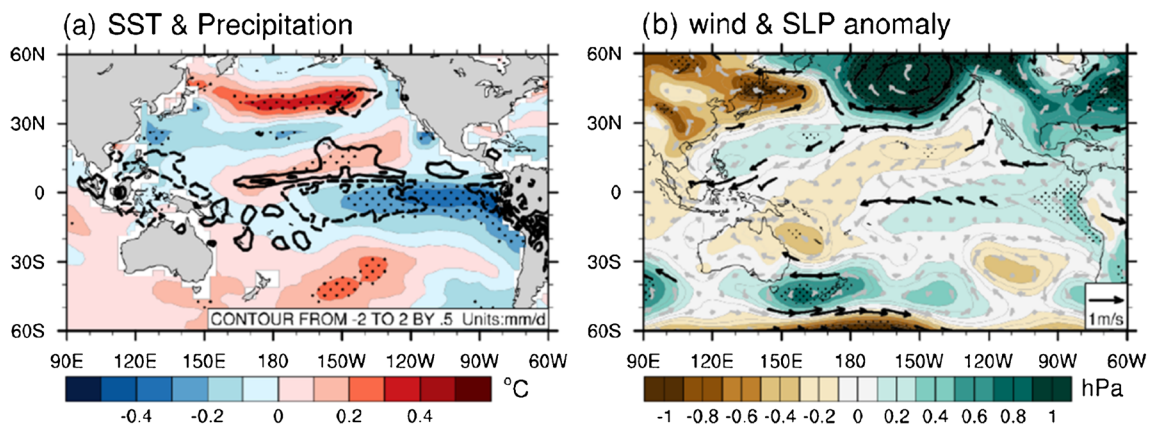
From the previous discussion, it is found that the 9/24 model can detect the OSH anomaly in the central and eastern tropical

Pacific, which is consistent with the observation of the annual peak limit, while the 15/24 model simulates the sea temperature anomaly. Sukwahi's observations on the model show that there are sea temperature anomalies in both sets of models (Fig. 9). In the similar LaNiña group, even if the anomaly is estimated (above 0.2°C), it also reproduces the negative anomaly observations in the equatorial Pacific. (Above 0.4°C) half. Among them, the range of negative SST anomalies in tropical regions is relatively narrow and long, while many positive SST anomalies in subtropical regions also cause SST anomalies in the Pacific (Trombadore et al. 2020). Reanalysis of the data found that in the El Niño group, the tropical sea surface temperature is usually not low, and there is no obvious abnormality in the subtropical region. Most tropical precipitation (ITCZ) is always contained in the ascending branch of the Hadley Circulation. However, the tropical precipitation of the La Niña group is negative, while the tropical precipitation of the El Niño group is positive. Inconsistent with the characteristics of the reanalyzed data results.

Because one of the mechanisms that cause unfavorable sea temperature anomalies when reanalyzing tropical data in the Central Pacific and Eastern Pacific is the initiation process, and the initiation of this process requires a strong upward flow of latent heat in the subtropical region, so first check that there are hidden in the two modes. Hot valley (Fig. 10). It is found that there is no obvious upward latent heat flow in the subtropical region of the La Niña Formation. The latent heat flux in the eastern tropical Pacific is declining, which means that the ocean in this region absorbs more latent heat in high-altitude years than in valley years (Fig. 10a). Potential changes in group heating (such as El Niño) have no obvious characteristics. In the two models, the northern part of the wind climate represented by 10°N is much weaker than the resulting reanalysis. In the final reanalysis, the northeasterly wind started at 20°N, while the model's northeasterly wind started at 15°N. The model is closer to the equator than the result of reanalysis of the data.

Fig. 4 Latent Heat Net Flux (LHNF) (filled, positive for upwards) in peak year and valley year and winter and 850hPa climatic wind field (vector arrow). The dotted areas are all areas that exceed the 95% confidence level

Fig. 5 Synthesize the difference in meteorological elements between the solar peak years and valley years in the northern hemisphere during the 12 cycles, including (a) sea temperature anomalies (filled; unit: °C) and surface precipitation anomalies (black contours, positive values are solid lines). The negative value is the dotted line; unit: mm/d). (b) Sea Level Pressure (SLP) (filled color; unit: hPa) and 850hPa anomalous wind field (vector arrow, black for more than 95% significance test; unit: m/s). The dotted areas are all areas that exceed the 95% confidence level

By analyzing the difference in winter sea temperature between the two models (Fig. 11), it can be concluded that the western Pacific sea temperature similar to the La Niña group is higher than that of the El Niño group. The central Pacific and east are relatively low. In other words, the cold Pacific (such as the La Niña group) (Brown et al. 1972) is stronger than the El Niño group, and the east-west SST gradient in the tropical Pacific is higher. According to the ST method, the depth of the upper limit of the thermocline is defined as a depth 0.5°C lower than the sea surface temperature. For example, the salinity at sea is almost constant, and the salinity does not affect the thickness of the seawater. The lower the temperature of the sea, the greater the thickness of the sea, which results in the thinnest sea surface temperature (Wang et al. 2017). Therefore, the lower the sea surface temperature, the smaller the depth of the hotbed. La Niña's winter is much stronger than El Niño, which means that La Niña's thermocline is

deeper in the Western Pacific than in El Niño. The higher the thermocline, the greater the slope.

Consistent with the difference in the vertical wind direction between the La Niña and El Niño formations in the abnormal climate model (Fig. 12), the Omega zonal vertical field will sink. Mid-vertical wind fields will also sink abnormally near the equator. This confirms that the climate temperature of the eastern Pacific (such as the La Niño group) is lower than that of the El Niño group. The connection of the ocean atmosphere makes the air field correspond to the sea temperature field, and the vertical air field corresponding to the high cold temperature is submerged.

It can be concluded from Fig. 13 that the simulation results in the CMIP5 model are actually uncertain, and external forcing and internal processes are mixed together. In most models with colder climates, the mechanical mechanism of simulated dynamic climate temperature is more reliable, while most models with warmer climates are the opposite. In fact, compared with the
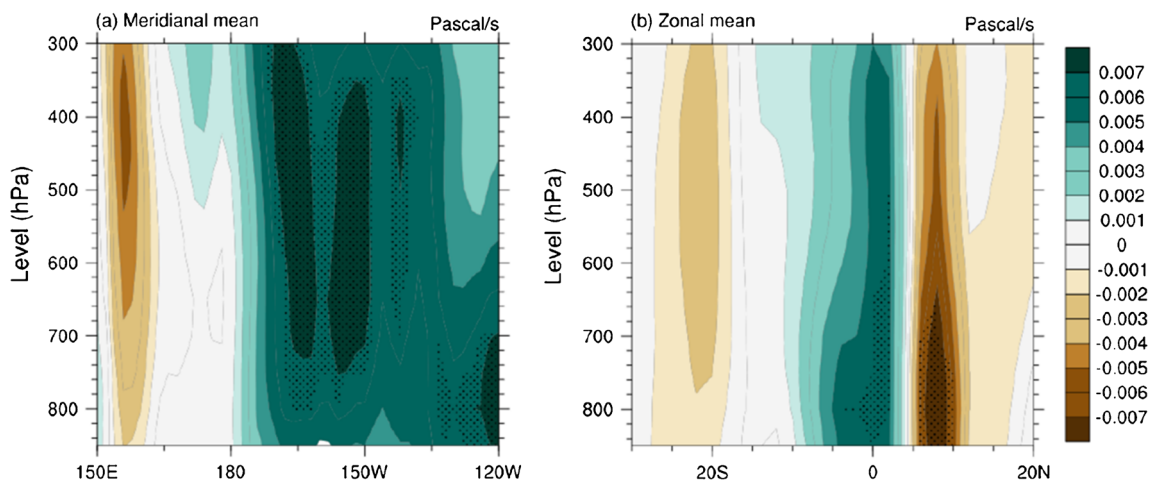
Fig. 6 The synthetic vertical movement Omega in peak year and valley year and winter (negative value indicates abnormal upward; unit: Pascal/s). (A) Take the average of 10°S-5°N in the longitudinal direction, and the latitude span is in the range of 150°E-120°W. (B) Take the average of 150°E-100°W, and the meridional span is in the range of 30°S-20°N
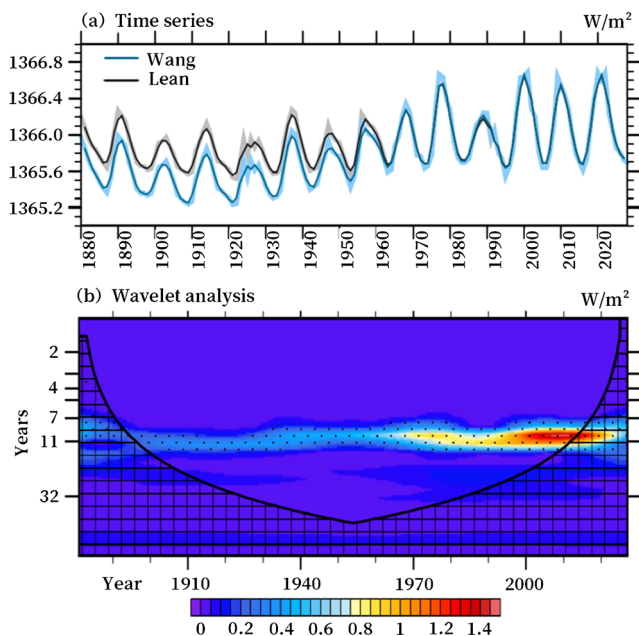
Fig. 7 CMIP5 uses (a) two kinds of total solar irradiance (TSI) (thick line) and its 3-year moving average sequence (thin line; unit: W/m²) and (b) wavelet analysis of Wang et al. (2005) (Lean (2000) omitted), the dotted area passes the 95% significance test

observation group, the cooling in the model itself has a larger systematic deviation, that is, the equatorial cooling simulated in the model is much colder than the actual model.

The difference in the response of sea surface temperature to the period of solar strength in the sensitive experiment

In order to pay attention to the influence of solar stress on the sensitivity test of CESM-LME in the tropical Pacific, the first thing to know is that the time and magnitude of solar stress will change the sensitivity of the whole experiment. In the
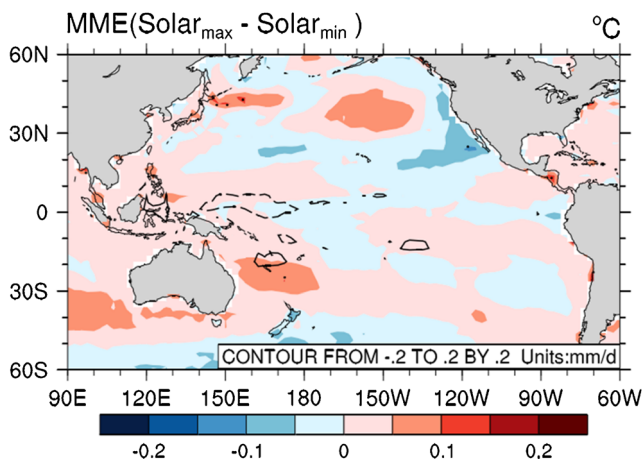
Fig. 8 Twenty-four model ensemble fields (unit: °C) of sea temperature and surface precipitation in solar peak years minus valley years. Data has been detrended

sensitivity test, the established total solar radiation is used to determine solar activity. Observing the change of total solar irradiance over time (Fig. 14a), it is found that there have been significant changes in solar activity in the last thousand years, and the changes may be strong or weak. If the amplitude of solar activity is higher, the time and frequency will be clearer, and if the amplitude is lower, the time and frequency will be less clear (Caerio et al. 2005).

According to the altitude method, in the selected period of strong solar radiation and weak solar radiation, the highest/lowest amount of each tenth cycle and the year of solar activity are selected as the solar peak/valley year (Table 4). In order to facilitate selection, the established total solar radiation data has been processed through band-pass filtering of 8–14 years. In fact, there is not much change in solar activity under severe weather, and the strong TSIs of peak years and selected valleys are not much different from those of other years.

Observing the difference between the peak and trough years of sea surface temperature during the strong and weak suns, it can be concluded that the peak year during the strong sun has a more significant negative signal to the western Pacific (Fig. 15a). This phenomenon is similar to the sea temperature anomaly signal observed in Chapter 3, and it also confirms this conclusion. At the same time, in Fig. 15a, there is a positive OSH anomaly on the east coast of East Asia, which is also consistent with the observed distribution of positive OSH anomalies. Therefore, whether solar activity will affect the climate variability of East Asia during the high-incidence season of strong solar weather and the sea temperature anomaly on the east coast of East Asia remains to be further studied. However, in the Pacific Ocean, there is no clear signal for sea temperature anomalies when solar radiation is weak. Therefore, only during the intense solar eruption, the tropical sea surface temperature anomaly in the Pacific enters a year similar to that of La Niña (Fig. 15b).

Figure 16 shows the anomalous distribution of total cloud volume during peak and trough periods in the tropical Pacific during strong and weak solar periods. In severe weather, the total amount of clouds in the tropical Pacific Ocean in the northern hemisphere increases abnormally, the total amount of clouds near the equator and the tropical Pacific Ocean in the southern hemisphere decreases abnormally, and the total amount of clouds in the subtropical regions of the southern hemisphere increases abnormally (Gorelick et al. 2017). This indicates that as the solar year enters, the equatorial Pacific receives more solar radiation, which is a prerequisite for the movement of the ocean constant temperature mechanism. In the Pacific Ocean, the total value of clouds shows a distinct "+-+" shape. This distribution is similar to observations, but generally observations move to the south. In the weak period, the general cloud anomaly method also shows a weak "+-+" pattern, but this pattern is not important (Zhang et al. 2014). It shows that if the solar radiation is weak, the peak year of the

Table 3 The CMIP5 model is based on the classification of the positive and negative difference between the peak year and the valley year Niño3 index

Serial number	Pattern name	Sea temperature difference in Nino3 area during peak and valley years	Serial number	Pattern name	Sea temperature difference in Nino3 area during peak and valley years
1	ACCESS1.0	-	13	GFDL-ESM2G	-
2	ACCESS1.3	+	14	GISS-E2-H	+
3	CanESM2	+	15	GISS-E2-R	+
4	CCSM4	-	16	HadCM3	+
5	CESM1 (BGC)	+	17	HadGEM2-CC	+
6	CESM1 (CAM 5)	+	18	HadGEM2-ES	-
7	CESMI(FASTCHEM)	-	19	MPI-ESM-LR	-
8	CMCC-CESM	-	20	MPI-ESM-MR	+
9	CMCC-CMS	+	21	MRI-CGCM3	+
10	CNRM-CM5-2	+	22	MRI-ESM1	+
11	CNRM-CM5	+	23	NorESM1-ME	+
12	CSIRO-Mk3.6.0	-	24	NorESM1-M	-

forcing sun has a greater impact on the total cloud volume. In short, during periods of strong/weak solar weather, the anomalous distribution of cloud totals is more consistent. Through observation, the signal will be significant only in the peak season.

Then, analyze the distribution of sea level anomalies and the 850hPa field in the annual peak and valley years of these two periods. As shown in Fig. 17a, at the highest peak of the year, under strong solar weather, a strong anticyclone appeared in the North Pacific, which was manifested as an abnormally high pressure in the past period of time. During the observation period. In combination with Fig. 15a, the abnormally high surface of the North Pacific Ocean may have caused this anti-cyclone. Similarly, even if the east-west equatorial pressure gradient is not large, there is a clear easterly wind in the equatorial Pacific (Fig. 17a), and similar curves can be observed in observations (Fig. 16b). This shows that

during sunrise under strong solar weather, solar activity can evoke feedback phenomena in the tropical Pacific city of Bjerknes. However, a high degree of feedback is sometimes not weak. This suggests that the force of the sun under severe weather changes much weaker in the impact of pressure levels on sea levels and aircraft.

By analyzing the vertical section of the vertical movement of the meridian in the strong and weak period of a day (Fig. 18), it is found that the central circulation of the Pacific Ocean in the strong and weak period has no significant characteristics and the distribution of Omega can be obtained from observation. The evaporation process stimulates the improvement of Hadley's circulation and the movement of its ascending branches (Fig. 17b), which ultimately promotes the flow of indoor air from the subtropical region and shortens the cloud cover, resulting in more solar radiation reaching the subtropical region. Since improving Hadley's circulation is an
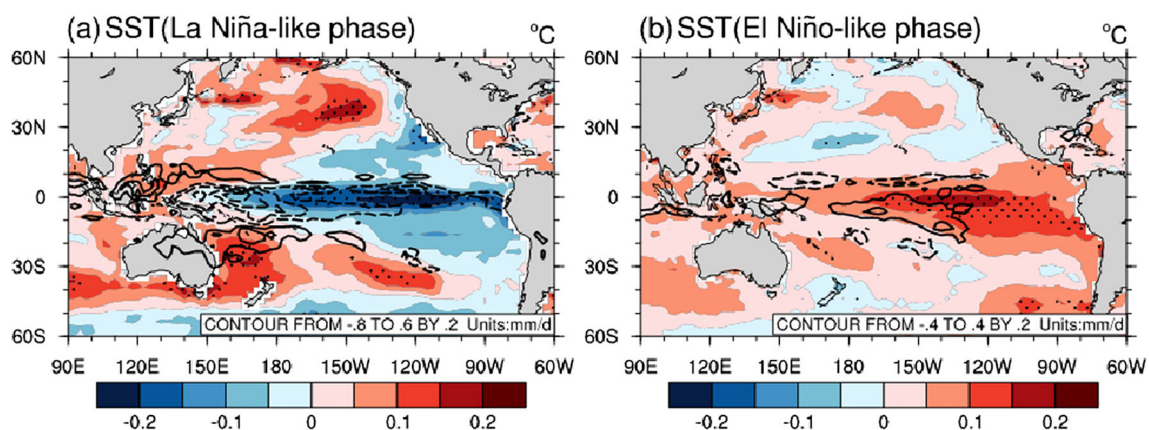
Fig. 9 Sea surface temperature anomalies (filled; unit: °C) and precipitation anomalies (black contour; unit: mm/d) during peak years and valley years of the 12 solar cycles in CMIP5 (a) is the La Niña group, (b) The group is a class El Nino group. The dotted area has passed the 95% bootstrap test
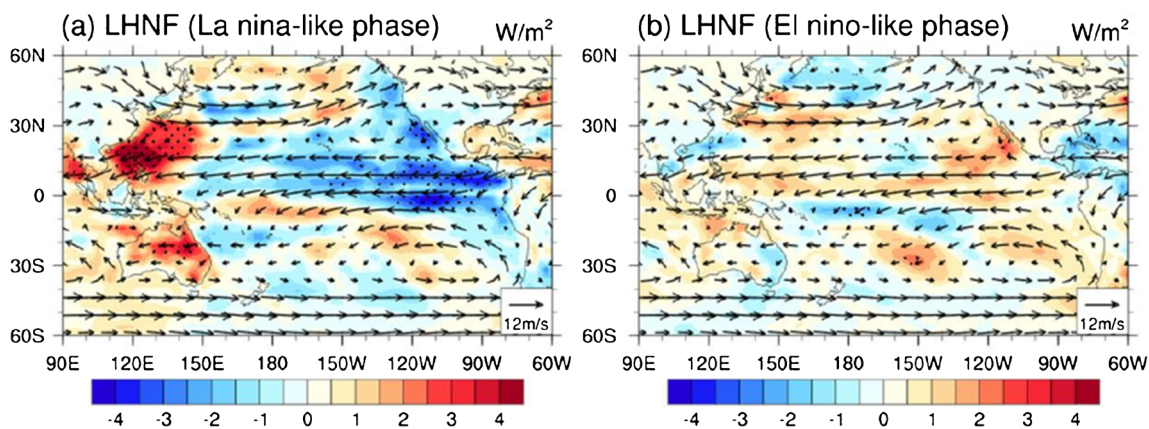
Fig. 10 Surface latent heat flux (filled, positive value upward; unit: W/m²) and winter 850hPa climatic wind field (vector arrow; unit: mm/s) multi-model ensemble average difference between peak years and valley years. Group (a) is the La Nina group, and group (b) is the El Nino-like group. The dotted area has passed the 95% bootstrap test

important part of the evaporation process, it can be concluded that the evaporation mechanism does not work in CESM-LME. Compared with valley years, this model year is higher under strong solar radiation, and its effect is similar to the La Niña phenomenon in the tropical Pacific, and is affected by the continuous temperature mechanism of the ocean.

Discussion

The language features, charms, and functions of trade English translation

Language features of trade English translation

In business communication activities, translators should be able to adapt the word order and atmosphere of the translation to the actual situation, and be as concise and clear as possible
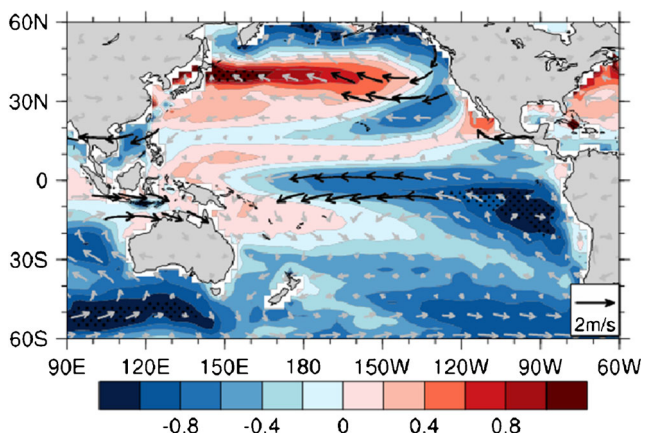

Fig. 11 The difference between the winter climatic sea temperature (unit: °C) and the 850hPa climatic wind field (unit: mm/d) between the La Niña and El Niño-like groups. The dotted area and the black vector arrow passed the 95% significance test

according to specific translation requirements. Business English translators must be familiar with the language features of business English translation, and be familiar with the correct basic usage methods. Commercialized English translation considers methods and procedures. For the same sentence, different translators provide different interpretations, and the translations are different in different situations and different contexts. For example, come on can express different meanings in different contexts (Hong et al. 2019). Can express encouragement, helplessness, applause, etc. It can be used flexibly according to different occasions of translation. Using different voice expressions in different scenes can produce a multiplier effect. Based on a full understanding of the cultural differences between the two parties, seek reconciliation while maintaining differences, understand the causes of the original text, and avoid conflicts that cause differences to the greatest extent (Li et al. 2012). Translators need to know how to resolve differences, read the text to be translated, understand the meaning of the article and the author's written purpose, feel the beauty of the text, and feel the impact of different cultures. Every translator has a different translation style, and you should create your own translation style to leave a deep impression on people.

The language charm of trade English translation

In different translation occasions, please pay attention to using different tones to adjust the atmosphere. The translator should not only be familiar with the cultural differences between the two countries, but also have a deep understanding of the cultural environment, beliefs and religious customs of the two countries. Experience the charm of different countries and languages. In the translation process, given the sentence structure of a specific sentence, it can effectively ensure the accuracy and standardization of the translated work, and accurately express the meaning of the article. Such a format statement is
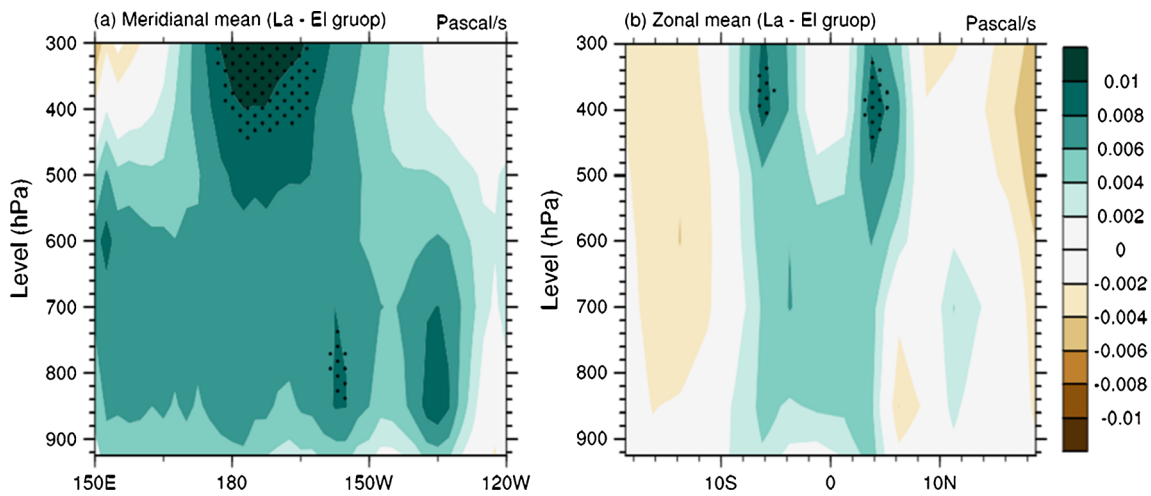
Fig. 12 The climatic state of the two models (a) zonal and (b) meridional vertical wind field omega difference (positive value is downward; unit: Pascal/s). (A) Take the latitude average of -5°S-5°N, the latitude span is 150°E-120°W, (b) take the latitude average of 150°E-100°W, the latitude span is 20 °S-20°N

easier to accept, simpler, easier to understand, and you can feel the beauty of the language more.

also has a place in the ever-developing economic globalization, and it is also a necessary "weapon" for all countries to pursue common development (Kansal et al. 2013).

### The role of trade English translation

In the twentieth century, in order to open its arms to Western culture, China sent envoys to conduct friendly exchanges with other countries. Translators from all over the world gather to conduct cultural, economic and military exchanges and communication, so that countries around the world can achieve more interconnected and common development. In the growth of international trade, trade English has played an important role, and it has undeniably brought potential economic benefits. It is not only a necessary tool for trade between countries, but

Cultural factors affecting the translation of trade English

As an important factor in international trade exchanges, trade English is a language way to track the progress of business and international trade. However, the differences in different cultural fields have a certain influence on the interpretation of the unity of information and the accuracy of the English translation of international trade exchanges. The summary mainly includes the following cultural differences:

Fig. 13 Scatter plots of the climatological Niño3 area average sea temperature of each model in CMIP5 and the Niño3 area sea temperature in the peak year and valley year of the model. The blue dots belong to the La Niña group, and the red dots belong to the El Niño-like group
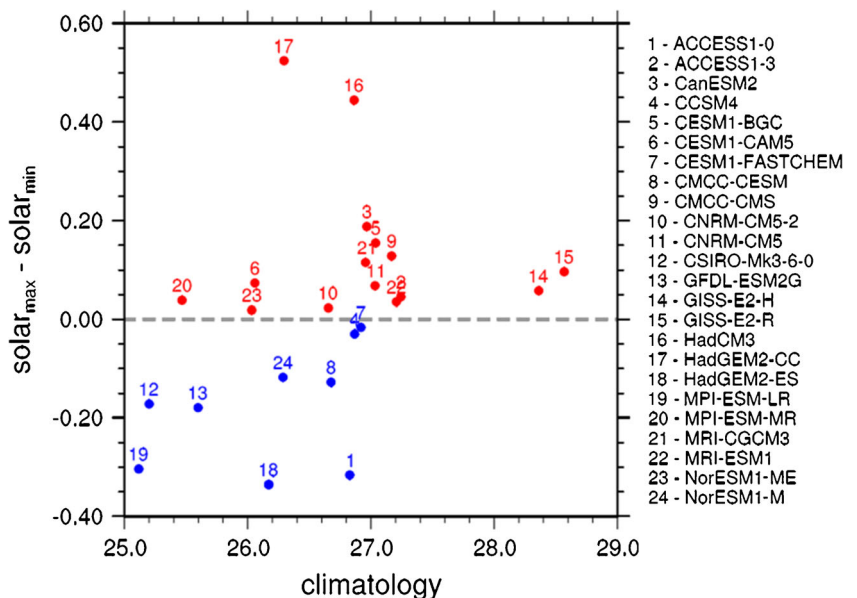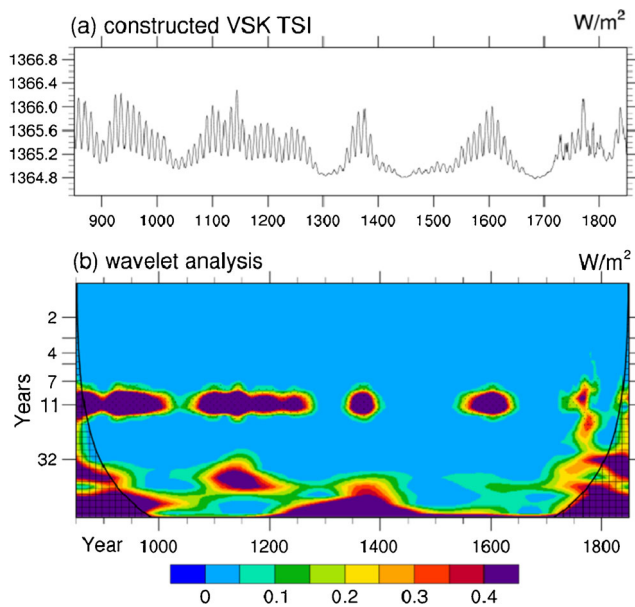
Fig. 14 (a) Time series and (b) wavelet analysis of the reconstructed total solar irradiance (unit: W/m²) used in the solar sensitivity test in the CESM-LME model. The dotted area is a band that passes 95% significance

Differences in the logical way of thinking

Words are the product of thought and the direct result of thinking. Mental activities can only realize the power of thinking with the help of language. However, under different dimensions in different cultural fields, there are differences in the way people think and express themselves. The Chinese people's way of thinking is spiral, that is, thinking rotation improves the process of language expression (Matta et al. 2018). The main content is usually indicated at the end; Westerners do not agree, and their thinking is a line. Speaking as a speaker, firstly, the logic is very clear, and secondly, in the process of expression, the main content is usually the first. Finally, list the non-key content. If you do

Table 4 CESM-LME The peak and valley years selected during the strong and weak solar periods (the number in parentheses represents the number of peak and valley years)

Strong sun period	Solar peak year (12)	Solar Active Valley Year (11)
AD1150-1280	1155, 1166, 1177, 1188, 1199, 1210, 1221, 1232, 1243, 1254, 1265, 1276	1160, 1172, 1183, 1194, 1204, 1215, 1227, 1238, 1248, 1259, 1270
Weak solar period	Solar peak year (13)	Solar Active Valley Year (13)
AD1400-1530	1408, 1419, 1429, 1439, 1447, 1454, 1463, 1474, 1485, 1496, 1507, 1518, 1529	1402, 1413, 1424, 1434, 1443, 1451, 1458, 1469, 1480, 1491, 1502, 1512, 1523

not understand the logical thinking methods of China and the West, you may overlook the important information of international trade exchanges in English.

Differences in national cultural psychology

A nation is a powerful social community with a common regional lifestyle, a common language and a common cultural psychology. Under the influence of the cultural psychology of different nationalities, people of different nationalities have different understandings of the same thing. For example, the number 13. It is unknown in the eyes of Westerners. However, the Chinese have no such cultural expression. In this regard, in international trade, we should understand the different psychology of national culture. And try to avoid "obstacles" in cultural psychology, and use expressions suitable for each cultural psychology.

Differences in regional living environment

"Clash of civilizations" is related to the heterogeneity of the geographical environment of life. For example, Europeans live in a mild environment, especially the UK. On the cold European continent on the back, only the west wind blowing from the other side of the Atlantic Ocean will bring them warmth. This means to the British people the special meaning of Western culture, and brings most of the UK into the cultural symbol of the Western style. In China, due to the diversity of the regional living environment, the cultural situation of "West Wind" is completely different, and it will give people a more "desolate" feeling. But Dongfeng is completely different, expressing the meaning of "warm" and "powerful."

The impact of cultural differences on trade English translation

Under the influence of different logical ways of thinking, national cultural psychology and regional living environment, it has a great influence on English international business communication. These influences are reflected in numbers, language, and religious beliefs.

The impact of digital cultural differences on trade English translation

Under different cultural backgrounds, the ways of expressing digital culture in China and the West are also different. Just like the number "13." Because it refers to the holy book in the hearts of Westerners—Jesus in the Bible was betrayed by his thirteenth disciple. Therefore, the number "13" is almost shielded by Western culture, and some buildings do not even have a floor "13." In Western culture, the numbers "8" and "6" beloved by the Chinese are also avoided. However, they
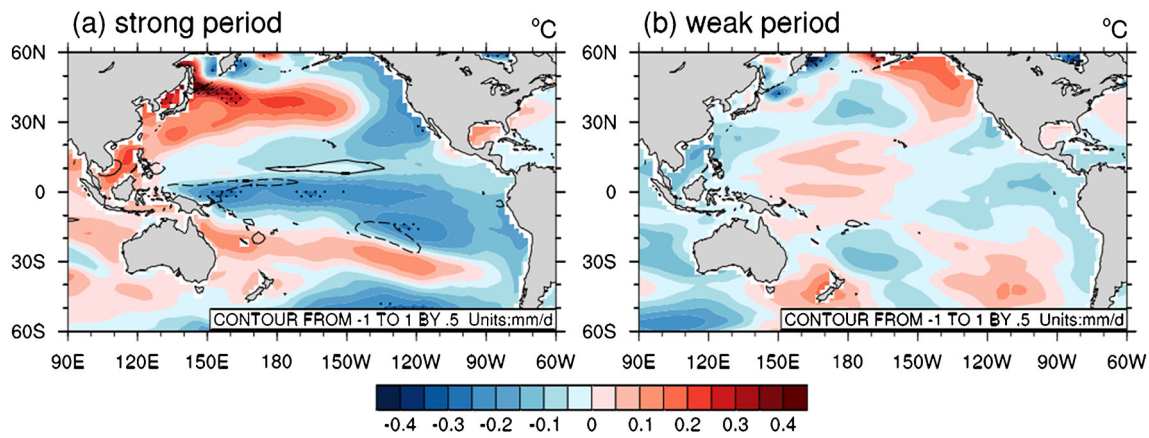
Fig. 15 The composite of the difference between the sea temperature (coloring; unit: °C) and precipitation (contour; unit: mm/d) in peak and valley years. (a) is the period when the sun is strong, and (b) is the period when the sun is weak (with a window of 130 years). All have done 8-14 years of band-pass filter processing. The dotted area passed the 95% significance test

love the number "7" to the same extent as the Chinese love the numbers "6" and "8." In Western brands, we often find "7," such as "7-UP" (Matta et al. 2015). Milton Pito's 7.11 chain stores, etc., but in the concept of Chinese culture. "7" is difficult to get such a high evaluation. In China, the number "9" is implied as "forever." Many trademarks are related to "9," such as pharmaceutical brands "999," and "Jiuzhou Group," etc. But in English, nine has no such meaning.

## The impact of differences in rhetorical format on the translation of business English

The form of rhetoric is an important way of expressing speech. However, due to the differences in cultural regions, there are also many differences in the rhetorical forms of Chinese and Westerners in language expression, such as the use of metaphors. Westerners use donkey as a metaphor for stupid people, while Chinese people like to use pigs. From this, we can understand the influence of cultural background, natural

connection and aesthetic appeal on the rhetoric of people from different countries. In addition, in the process of using metaphorical rhetoric, the Chinese have many metaphorical component words (Pradhan 2013). The Chinese like to be compared to the "descent of the dragon." Because from the perspective of the Chinese people, the dragon is a noble race. But in Western culture, the dragon is a very evil beast. Westerners often use direct metaphors instead of metaphors. Based on this aspect, in the international trade exchanges conducted in English, it is necessary to ensure the differences in rhetoric about the differences between Chinese and Western cultures. Only in this way can the accuracy of the translated information be ensured.

The influence of cultural field differences on the accuracy of trade English translation

Business English translation involves many elements, such as trademark advertising terms and product names. However,
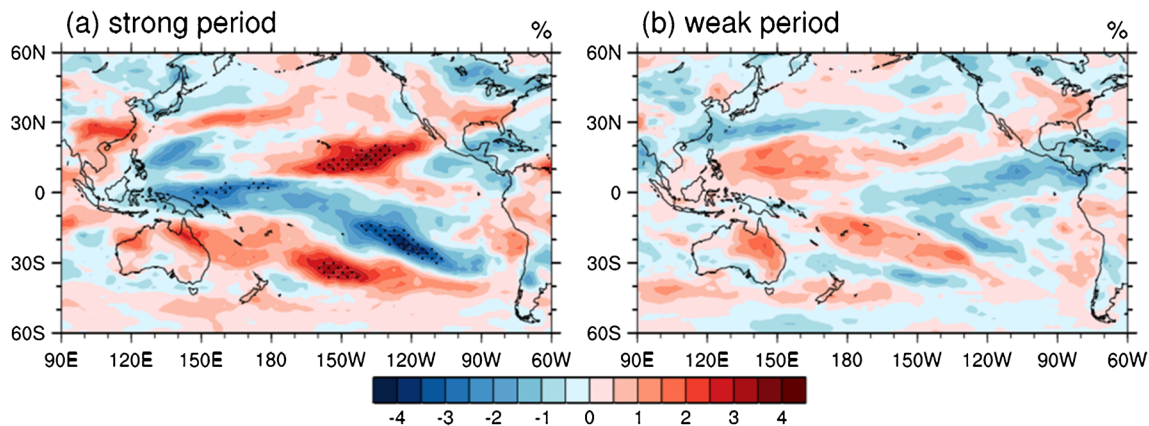
Fig. 16 In the solar sensitivity test, the composite of (a) the peak year during the period of strong solar radiation and (b) the period of weak solar radiation minus the total cloud amount (unit: %) in the valley year. The dotted area has passed the 95% significance test
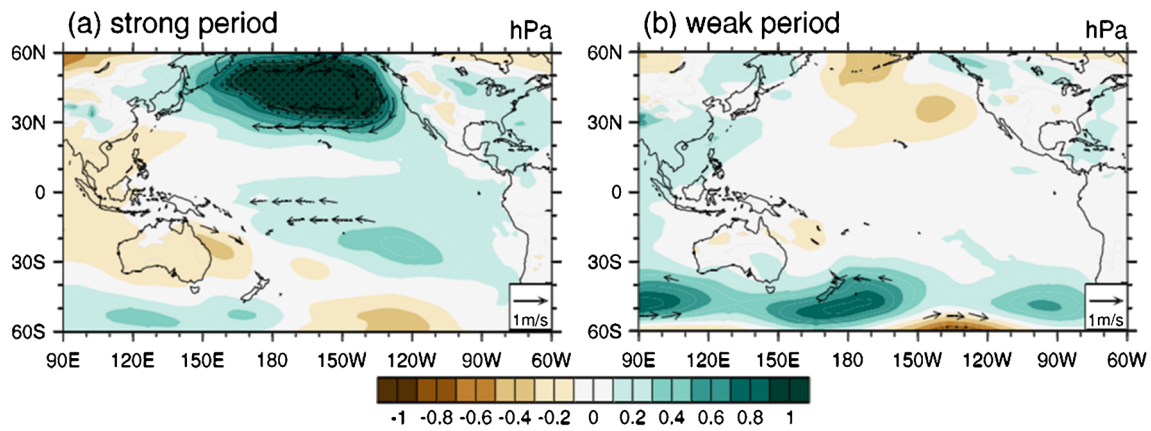
Fig. 17 The abnormal sea level pressure field of peak year minus valley year (filled, dotted area is 95% significance test; unit: hP a) and 850hPa abnormal wind field (vector arrow, the black arrow displayed means that 95% is passed Significance test of; unit: mm/s) composite, (a) is the strong period, (b) is the weak period

under the scale of cultural differences, the translation accuracy of these elements will inevitably be affected.

The impact of trademark translation

As a high-level summary of many product definitions, trademarks play an important role in product release, marketing and promotion. However, in the context of cultural differences, it is very important to correctly interpret the cultural connotations covered by trademarks, and the language level requirements of translators are also higher. In addition to requiring translators to have a deep understanding of the cultures of the two countries, translators must also be proficient in the expressions of the two countries and have rich knowledge of cross-language and cross-cultural communication. For example, the Chinese trademark "Xiongji" alarm clock. In order to open up overseas markets, the trademark must be translated. It is translated as "GoldenCock" (Ramesh and Anbazhagan 2015). There is nothing wrong with being a literal translation. However, there are very few initial buyers for promotion. At first, this was considered a product quality problem. After investigation, it was found that the word "cock" was an inferior language in Western culture. Eventually the product was translated as "Golden Rooster" on the open market. It shows that cultural factors must be taken seriously in trademark translation.
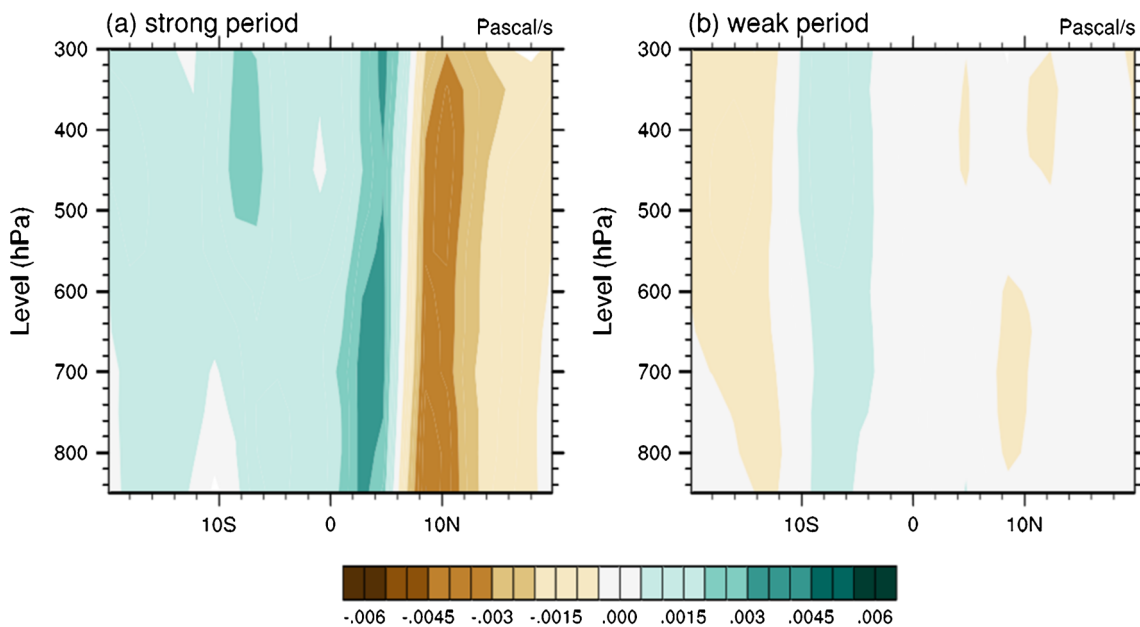
Fig. 18 (a) During the period of strong solar radiation and (b) during the period of weak solar radiation, the 150°E-120°W zonal average vertical motion profile (omega; unit: Pascal/s) in the peak year and valley year of the weak solar radiation period, take 20°S- The meridional span of 20°N. The dotted area has passed the 95% significance test

The impact of advertising language translation

Advertising is an important factor in product marketing today. Advertising must be used every time a product enters the domestic market. In any situation, other factors should be considered in the process of using advertisements, including different cultural environments, growth environments, and local lifestyles and ways of thinking. These factors will affect the thinking of the audience of the slogan. However, it is not easy for advertisements to "go to the village and do what the customs do" (Seth et al. 2016). In the process of translating advertising slogans, they are usually expressed in local expressions and life proverbs.

The impact of product name translation

Commodity name is another name that should be mentioned in trade. However, due to different cultural systems, the name of the same product is related to people's understanding of things, and there are many differences. For example, "Green Tea" can be literally translated as "green tea." Black tea cannot be translated as "red tea." It should be translated as "black tea." This is related to the color of the black tea itself, not to its color in the water. In addition, cabbage, kale, etc. are called "cabbage" in English. In this regard, cultural factors from different countries should be taken into consideration when translating product names.

Strategies to improve the level and accuracy of trade English translation

Strengthen the mastery of Western cultural knowledge

The translator himself must have a good level of translation. The Chinese writer Yan Fu first defined the principle of "faithfulness and elegance" for translation. On this basis, translators need to increase their reading volume and scientific reserves, read a large number of original foreign novels, and experience the lives of Westerners personally, combining with the Western culture they want to understand, so that they can more easily understand the differences. When reading, you must pay attention to its mysteries to understand the author's intentions, incorporate the author's meaning in the translation work, understand the differences between Chinese and Western cultures and understand their different nature, taboos or metaphors, and do not violate taboos in the translation process. If you find ambiguous expressions in the translation process, you can choose to avoid them, highlight the theme as much as possible, and make the translation expression clear and smooth.

Pay attention to the improvement of trade translation skills

Translation is not only a change in bilingualism, but also a cultural transfer, conversion and exchange between the two countries. Using basic translation skills in the translation process can make the translation process easier. Add words, delete words or convert words, use rhetoric, etc. Can improve the translation process. Using these translation process skills wisely will make the entire translation process easier and more enjoyable. According to the specific usage of English, adding and subtracting translation methods in English translation can make the article easier to understand and eliminate inconsistent words. In the translation process, we must pay attention to the conversion between word separation and sentence combination. Some long and difficult sentences are converted into some simple short sentences, which can make the article simple and not obscure. Translation skills are not just to remember words and grammar regularly to classify, combine, and divide the words in the original sentence, but to turn some concatenated sentences into simple sentences, and use the relevant active voice and passive voice. Switch.

Conclusion

This article uses the CMIP5 model history test to verify whether similar events can be simulated, and discuss the difference in response mechanism between the model group that can simulate the event and the model group that cannot simulate the event. Finally, in order to better determine the previous results, this paper uses the CESM-LME solar sensitivity test results to analyze the difference in the response of the tropical Pacific during peak and valley years during strong and weak solar radiation. And completed the circuit design of the audio capture part and the video capture part, the peripheral interface circuit of the DSP and the circuit design of the power supply part in this article. At the same time, according to the development of the I2C sub-device driver in V4L2 and ALSA and the configuration of related registers, the audio and video parts of the acquisition chip have been developed under the Linux platform. Finally, this article studies the translation of trade English, as long as you master some of the know-how in the translation of trade English, the task of translation can be much easier. You can adapt the necessary combinations to different contexts, and try to translate high-quality works at a high-quality level, so as to try to translate what you really understand in the original text to get the most benefit.

Declarations

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