

INSTITUTE OF METEOROLOGY AND HYDROLOGY – VIETNAM

CLIMATE & CLIMATE PREDICTION IN VIETNAM

PHAM THI HAI YEN

INSTITUTE METEOROLOGY AND HYDROLOGY

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Outline

A. INTRODUCTION TO NATIONAL
METEOROLOGY – HYDROLOGY SERVICE
(NMHS)

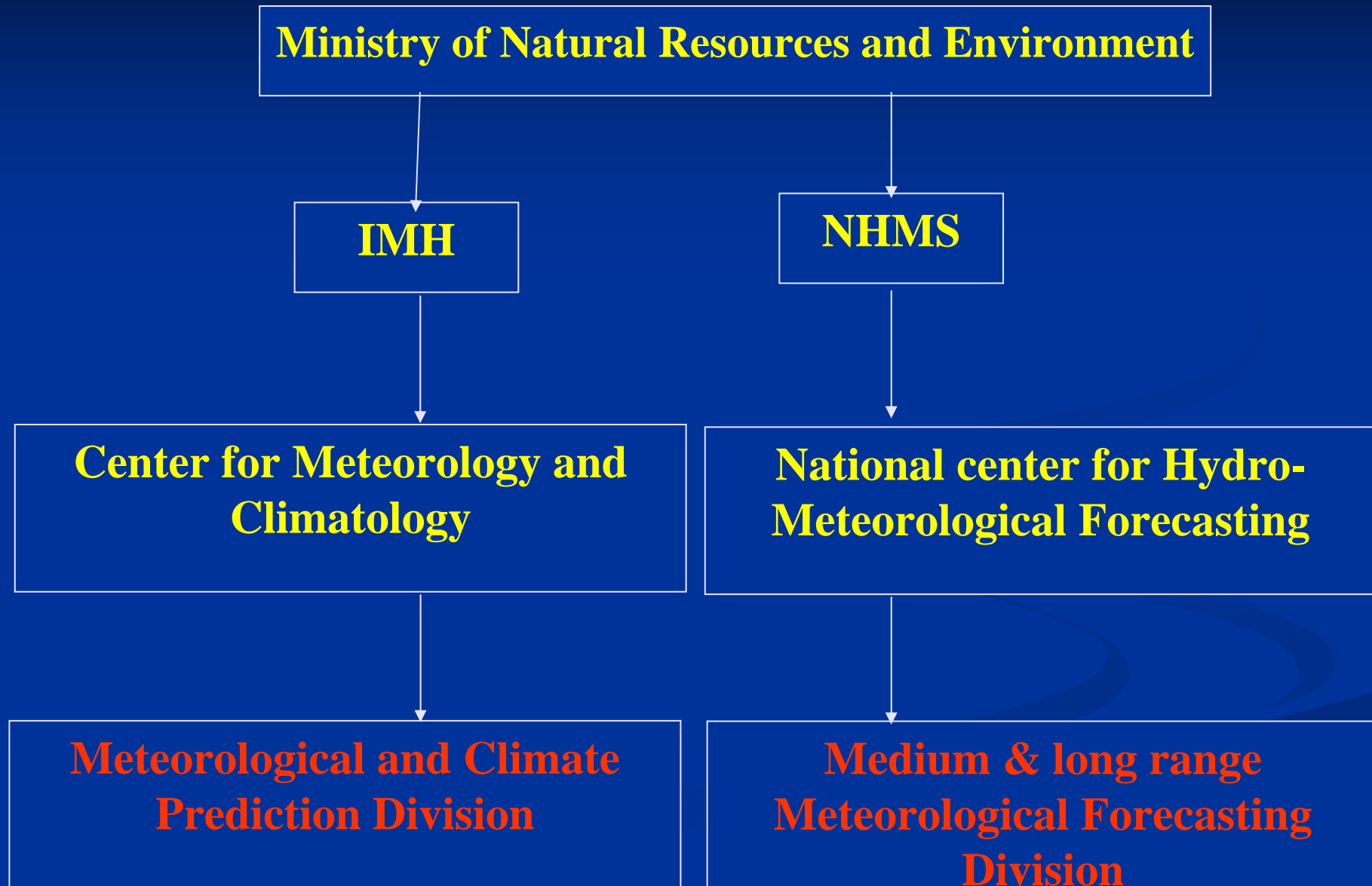
B. CLIMATE AND CLIMATE PREDICTION
ACTIVITIES

C. GOVERNMENT INTERVENTION IN
CLIMATE PREDICTION

A. INTRODUCTION

There are two main official organizations for climate and climate prediction governed by Ministry of Natural Resources and Environment.

structure



B, CLIMATE AND CLIMATE PREDICTION ACTIVITIES

Tasks of Center for Meteorology and Climatology and Medium & long Term Meteorological Forecasting Division will be shortly introduced since these two units are responsible for climate and climate prediction. Followed by detailed recent climate and climate prediction status of IMH

-Undertaking studies of scientific ground for the establishment of development strategy and policies on meteorology, climatology, atmospheric physics; To be in charged of the formulation of development strategy on science and technology;

-Formulating the long term, 5-year, annual research plans for meteorology, climatology, atmospheric physics, sea – air interaction;

-Participating in building up development project on meteorology, climatology, atmospheric physics, sea – air interaction;

-Organizing the implementation of the programs, projects and thematic studies on science and technology for meteorology, climatology, atmospheric physics, sea – air interaction;

-Studying, applying advanced science and technology, and transferring technologies in meteorology, climatology, atmospheric physics, sea – air interaction;

-Undertaking the contracts on thematic studies, applied advanced techniques and transferring research, experiment results in meteorology, climatology, atmospheric physics, sea – air interaction;

-To investigate, experiment in meteorology, climatology, atmospheric physics and sea – air interaction;

-Take part in the implementation of the international cooperation programmes/projects on meteorology, climatology, atmospheric physics, sea – air interaction;

-Organizing to publish meteorological, climate bulletins and predictions;

Meteorological, climate bulletins contents:

Part I: Bulletin

- General remarks on global and regional climate happening in the last three months: ENSO phenomenon, SSTA, high and surface levels wind, pressure centers, trade wind, temperature, and rainfall.

Source: <http://www.cpc.ncep.noaa.gov>

<http://www.bom.gov.au>

<http://iridl.ldeo.columbia.edu>

- Summarizing the last three-month climate happening in Vietnam: Temperature, rainfall, sunshine, humidity, some extreme phenomenon (heavy rain, drought, tropical cyclone, cold front...)

Network: 150 surface meteorological stations

Part II: Outlook

- General forecast of the global, regional, and Vietnam climate next three months: ENSO, SSTA, temperature, rainfall.

Source: Data and information gathering from Internet of many Meteorological Centers, such as IRI, ECMWF, NCC, NCEP, KMA, JMA, and Australia

- Predicting for climate of Vietnam:

+ Methods: differentiate analysis, gradual regression and multiple linear regression.

+ Predictors: temperature, rainfall, SOI, SSTA index in the Nino1+2, Nino3, Nino4, Nino3.4 regions, the main component of global SST field. (Data to input model: http://www.bom.gov.au/climate/ahead/sst_data_table12.txt).

Predictands: ENSO, Monsoon, Rainfall, Temperature, and Extreme phenomenon: heavy rain, drought, tropical cyclone, cold front,...

Main outcomes: Probabilities for next three-month values of temperature and rainfall that are considered to be a) below average; b) average; c) above average. Forecasting next three-month anomalies of temperature and rainfall.

Besides, we have used the outputs of a model: “Climate prediction using Statistical Downscaling method” for reference before producing the final report.

Example: Products of model: "Climate foercast in Vietnam"

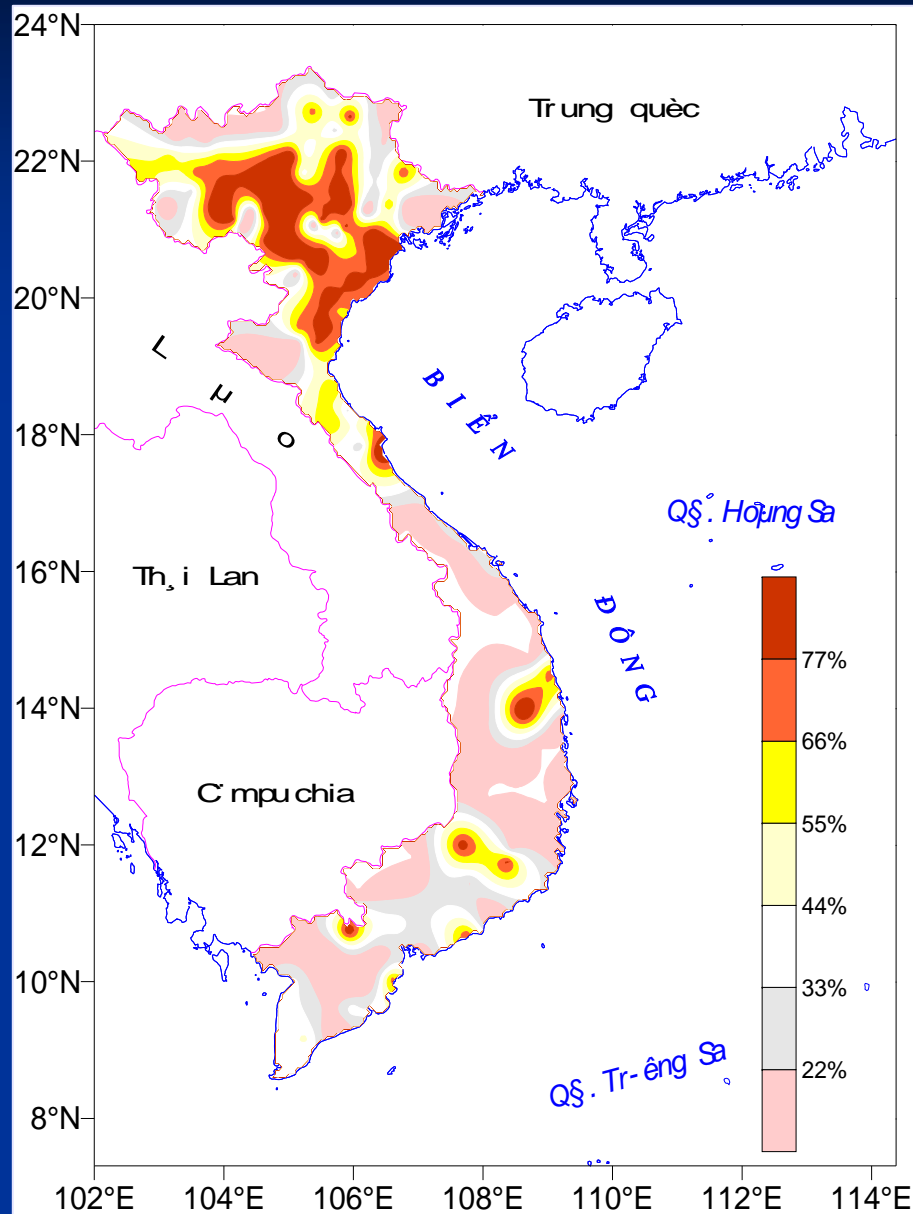


Fig. 1: Probability of below median rainfall for 3-month period from August to October

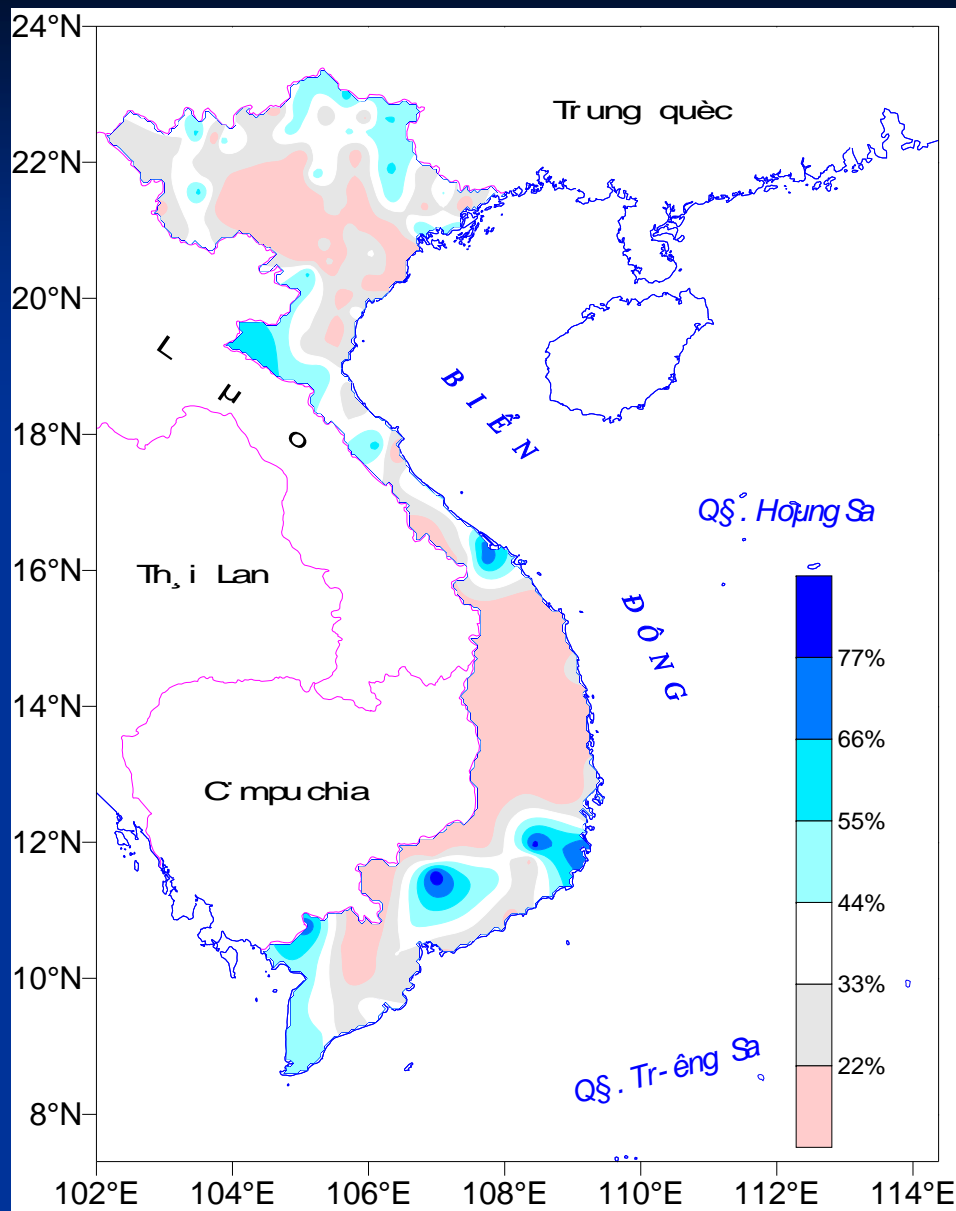


Fig. 2: Probability of near median rainfall for 3-month period from August to October

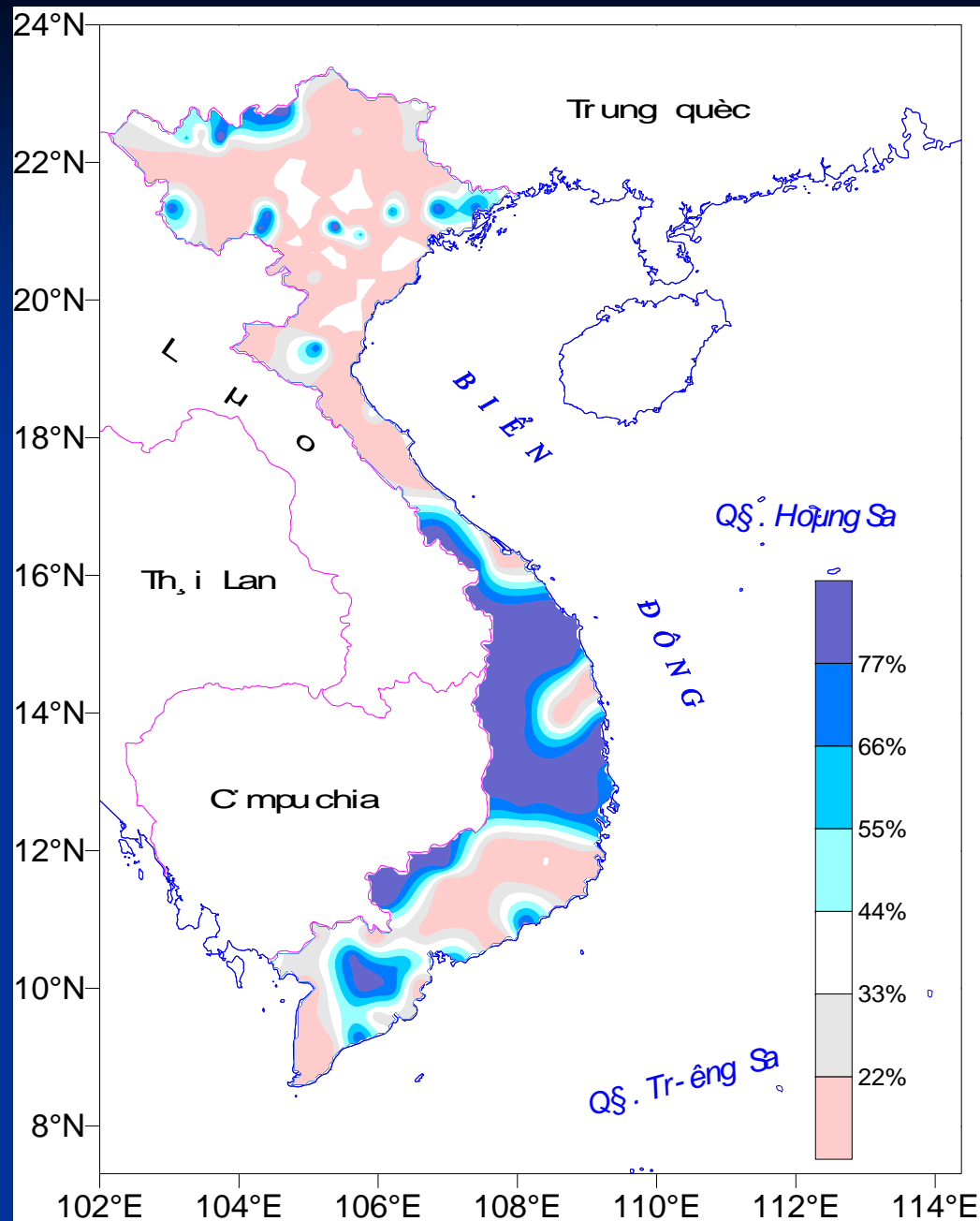


Fig. 3: Probability of exceeding median rainfall for 3- month period from August to October

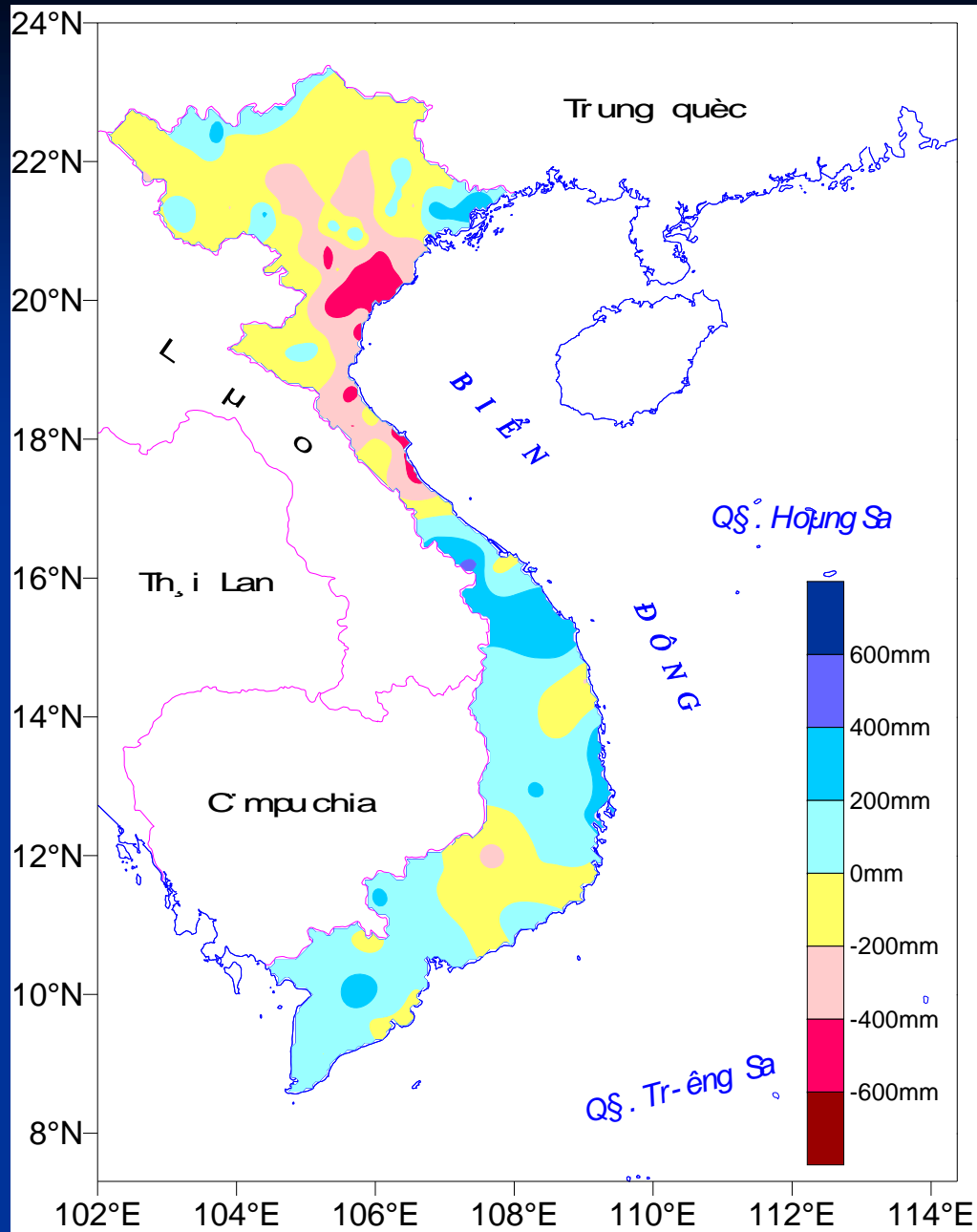


Fig. 4: Probability of rainfall anomalies for 3-month period from August to October

C. GOVERNMENT INTERVENTION IN CLIMATE PREDICTION

A project named “Applying information of climate and climate prediction on socioeconomic sectors and natural calamity prevention in Vietnam” is going to carry out in IMH.

Project aims:

- To enhance scientific and practical basics of climatic and climatic prediction information for socioeconomic sectors and natural calamity prevention in Vietnam.

- To provide the predicting information of the seasonal and monthly climate for agricultural production, water resource management, social health improvement, and natural calamity prevention in Vietnam.

- To improve the community awareness about the application of the climate predicting information for agricultural production, water resource management, social health improvement, and natural calamity prevention. To enhance professional ability and equipments for the task of the climate noticing and predicting in Vietnam.

Contents:

- To collect and supplement data, documents and to analyze the climatic element fields in Vietnam;
- To investigate and survey the data and to visit for learning international experiences;
- To calculate the applied climate characteristics and to build handbooks for consulting, guiding of climate data usages;
- To improve the available climate predicting methods and develop the serving climate predicting methods;
- To apply information of climate and climate prediction on agricultural production;
- To apply information of climate and climate prediction on water resource management;
- To apply information of climate and climate prediction on social health improvement;
- To organize the workshops, training, and transferring the products.

Main Outcomes:

- A set of basic data;
- Handbooks of climate data usage for agriculture, fishsment, water resource managment and usage, social health improvement, construction, and natural calamity prevention;
- The cost-benefit assessments of using the climate predicting information for agricultural production, water resource management, social health improvement, and natural calamity prevention.
- Models, software of using the climate predicting information for supplying concrete guidance in agricultural production, water resource management, social health improvement;



Thank you