Land Cover Group

Landform G.: Shigeko HARUYAMA, Kotaro YAMAGATA,Mizue MUROOKA*
Land Cover G.:Akihiko KONDO,Shigeko HARUYAMA, Yoshitaka MASUDA*,Mizue MUROOKA**

1.Progress up to now

Land cover change mapping of the Amur river basin from 1980 to 2000 using PAL Data set and trend analysis of the river basin for getting the remarkable land cover change area and examination.

Geomorphologic land classification mapping of the Sanjang plain as for important wet land area.

Wet land mapping on the geomorphologic land classification map of the Sanjang plain and wet land vegetation explanation

2.Future issues

Next year, 1) we will try to make geomorphologic land classification map extension of the Keya river basin for modeling with hydrologic and water quality group, 2) construct of the theory of relationship between geomorphologic structure and wet land in mass balance, 3) discuss land cover change and social history in the remarkable transition, 4) age determination of surface soil for deciding the geomorphologic evolution of the Sanjan plain, and discuss with human activities.

3.Results of each group

Land cover change of the three river plain using remote sensing data analysis

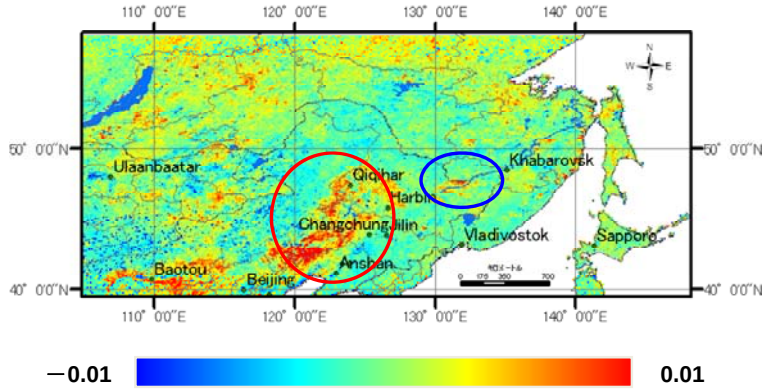
In order to evaluate the influence from sea and land linkage system in Amur river to Sea of Okhotsk, land cover change analysis is important. In this research, the authors tried to clarify Land Cover change in the Amur Basin for recent 19 years, utilizing PAL data set analysis using satellite remote sensing technique because of the land cover change study suggest to widely view of environmental assessment. The materials of satellite data set for analysis are NOAA/AVHRR PAL dataset, and NDVI (Normalized difference Vegetation Index) parameter for analysis. Combining following parameters (ΣNDVI,NDVImax,NDVIstd,TS_NDVI and Tmax), the signal of Landcover Change was clarified in the three river Plain in the Amur river basin. As a result, the strong signal of land cover change was found in eastern part in Amur river basin.

The trend of inclination (TRJ) of tracks in maximum ground level temperature (Tmax) and the Ts-NDVI space was analyzed during multiplication value (ΣNDVI) and year during the year of NDVI from 1982 to 2000 during standard deviation (NDVIstd) of maximum value (NDVImax) and ΣNDVI and years.

NDVI value did not change in each year almost in winter, however, trend of NDVI for last 19 years reveals the signal in summer. As for the urban area and their surrounding with elevation 50m to 70m and the north-eastern plain in china, NDVImax. reveals to increasing for 0.005~0.007 and NDVIsum shows to increase for 0.02-0.09. Interpretation of NDVImax for land use in these regions, the vegetation density has been creasing because of development from wet lands. However, Tmax has been decreased on the opposite to the value of NDVIsum. Forest reserve area including along the coast, mountainous areas reveal the value of 1.2~2.0 in NDVIstd and -0.20 ~-1.5 in Tmax -0.2~-1.6 in TRJ. TRJ 2 means wild fire occurrence. (Fig.1)

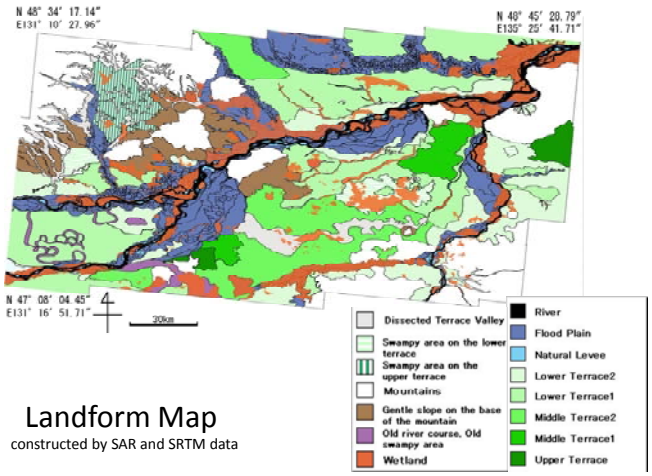
Fig.1 Land cover change of the Amur River Basin last 20 years(A. ΣNDVI ±0.2/year, B. NDVImax ± 0.01/year, C. NDVIstd 0~1.5, D. TS_NDVI(TRJ) ±5/year, E. TSmax ±1/year

Trend analysis of NDVI max for 20years
(1980-2000)



Geomorphologic land classification mapping

Geomorphologic land form classification mapping method has been sophisticated by Haruyama and Shida (2006) using JERS-1 SAR data and the flooded area determining was revealed for pointing a threshold using dry and rainy season SAR data (Ito ,2007) . The study field, Sanjiang Plain and surroundings area formed by three large rivers flowing in Heilongjiang Province in northeast China, has been remarkably changed for agricultural land use from wetlands since 1950's. Studying satellite mapping, the authors aim to classified geomorphologic land form and discuss relationship between wetland and landform units. In this study, firstly to clarify the geomorphologic landform characteristics where the wetlands were cultivated in the Sanjiang Plain and surrounding area(Fig. 2), JERS-1 SAR data were used because only JERS-1 SAR used L-band. Land form in this study area, ***Mountains and hills***, ***Floodplain***, ***Swampy area on the terrace***, ***Dissected terrace valley***· ***Alluvial plain*** are classified in Fig.2.



Landform Map
constructed by SAR and SRTM data

4.Problems and possible solusion

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5.Past grants and funds related to the project

基盤研究（B）（海外）「アムール川流域における人間活動による河川環境への影響に関する検討」

(代表：山縣耕太郎)

6.Future activities

Geomorphologic land classification mapping of the Keya river basin

Analysis of the maximum of flood inundation of the flood plain of the Sanjang plain and the Keye river

Construct of the theory of relationship between geomorphologic structure and wet land in mass balance

Discuss land cover change and social history in the remarkable transition

Age determination of surface soil for deciding the geomorphologic evolution of the Sanjan plain, and discuss with human activities.

7.Achievements

Article

.増田佳孝.**春山成子**.近藤昭彦.室岡瑞江(2006)：正規化植生を用いたアムール川流域の土地被覆変化の把握、農村計画学会誌論文特集号.25.245-250pp.

Mizue Murooka, **Shigeko Haruyama** and Yoshitaka Masuda(2008) :Land Cover Detected by Satellite Data in the Agricultural Development Area of the Sanjiang Plain, China.Jounal of Rural Planning. No.26.197-202pp.(English)

Proceedings and reports

.**Haruyama Shigeko**,Masuda Yoshitaka and Mizue Murooka(2006):Land Cover Change of the three river plain using remote sensing data analysis.***Proceedings of the International Conference,Problems of sustainable use of the transboundary territories.*****Vladiv**ostok, Russia.144-146pp.(English)

増田佳孝.**春山成子.**近藤昭彦(2006):アムール川流域のNDVIの変化、第8回CEReS環境リモートセンシングシンポジウム資料集.3-4pp.

M. Murooka, **S.Haruyama**,Y.Masuda(2007)land Cover Change on the Sanjiang Plain ,China, 2007KSRP-RPA International Sympojium-Country-wide rural plannnin and the Amenity in 21stCentry,110-111pp.

M. Murooka, **S.Haruyama**,Y.Masuda(2007)Land Cover Change on the Sanjiang Plain ,China, 007KSRP-RPA International Sympojium-Country-wide rural plannnin and the Amenity in 21stCentry,110-111pp.

室岡瑞恵.**春山成子**(2006)：Jers 1 SARを用いた三江平原の土地被覆モニタリング.農村計画学会秋期学術研究発表会要旨集.3-4pp.

増田佳孝.**春山成子(**2006):アムール川流域の広域土地被覆モニタリング.農村計画学会秋期学術研究発表会要旨集.5-6pp.

Haruyama S.,Madusa Y.,Kondo A.,Murooka M.,and Yamagata K.(2007): Evaluation of land-cover change in Amur basin using NDVI derived from NOAA/AVHRR PAL data set.***Report on Amur-Okhotsk Project(RINH).*** 4.129-138pp.(English)

Murooka M.,**Haruyama S**.,Madusa Y.,Kondo A.,and Yamagata K.(2007) : Analysis of land cover on the Sanjiang plain, China, using JERS-1/SAR data.***Report on Amur-Okhotsk Project(RINH).*****4**.161-168pp.(English)

Yamagata K., **Haruyama S**.,Madusa Y.and Yamagata K.(2007): Geomorphological research in Sanjian plain 2006. ***Report on Amur-Okhotsk Project(RINH).*****4**.169-172pp.(Engish)

室岡瑞恵.**春山成子**(2008)：三江平原における耕地開発に伴う緑地変化.農村計画学会春期学術研究発表会要旨集.49－50pp.

春山成子(2007):国際河川アムール川と土地被覆変化によって生じる問題—三江平原の変化. 地理.53(1).106-119pp.

春山成子・増田佳孝(2007): アムール川中流地域の土地利用変化アジア研究所編.「アジア諸国の環境問題:RIO+10 の検証」. アジア研究所. 101-116pp.

室岡瑞恵(2005):ロシア・中国アムール流域調査報告，北水試だより 71．p. 18.

栗原康裕, 室岡瑞恵（2006):アムール・オホーツク・プロジェクトにより採集されたアムール川中流域の淡水軟体動物, 日本貝類学会平成 18 年度大会研究発表要旨集 21.

Presentation

Haruyama Shigeko,Masuda Yoshitaka and Mizue Murooka(2006):Land Cover Change of the three river plain using remote sensing data analysis. ***International Conference-Problems of sustainable use of the transboundary territories*.Vladiv**ostok

M. Murooka, **S.Haruyama**,Y.Masuda(2007)Land Cover Change on the Sanjiang Plain ,China, 007KSRP-RPA International Symposium, Soeul

室岡瑞恵.**春山成子**(2006):Jers 1 SARを用いた三江平原の土地被覆モニタリング.農村計画学会秋期学術研究発表会.

増田佳孝.**春山成子**(2006):アムール川流域の広域土地被覆モニタリング.農村計画学会秋期学術研究発表会.

室岡瑞恵.**春山成子**(2008):三江平原における耕地開発に伴う緑地変化.農村計画学会春期学術研究発表会.

近藤昭彦、李海蘭、唐常源、春山成子、山縣耕太郎、室岡瑞恵(2008):中国・三江平原における地下水流動系に関する予察的研究、日本地球惑星科学連合2008年大会