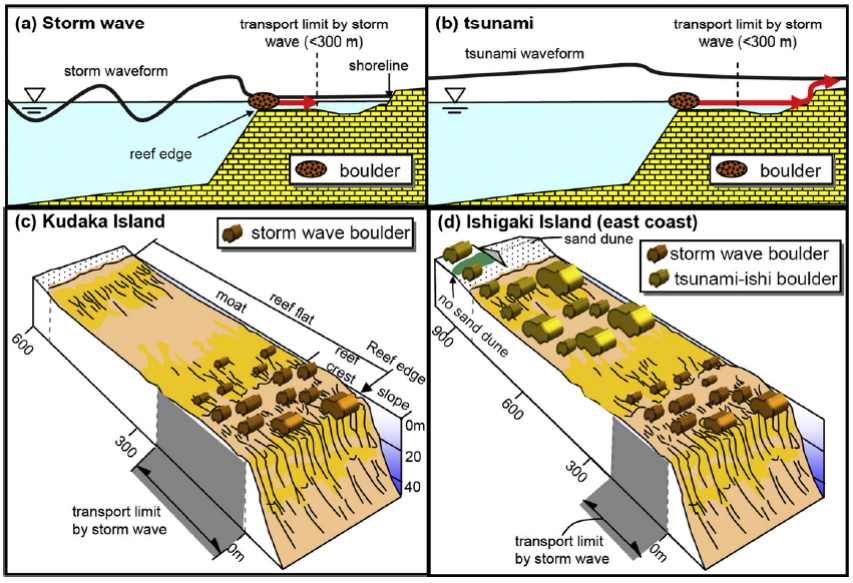
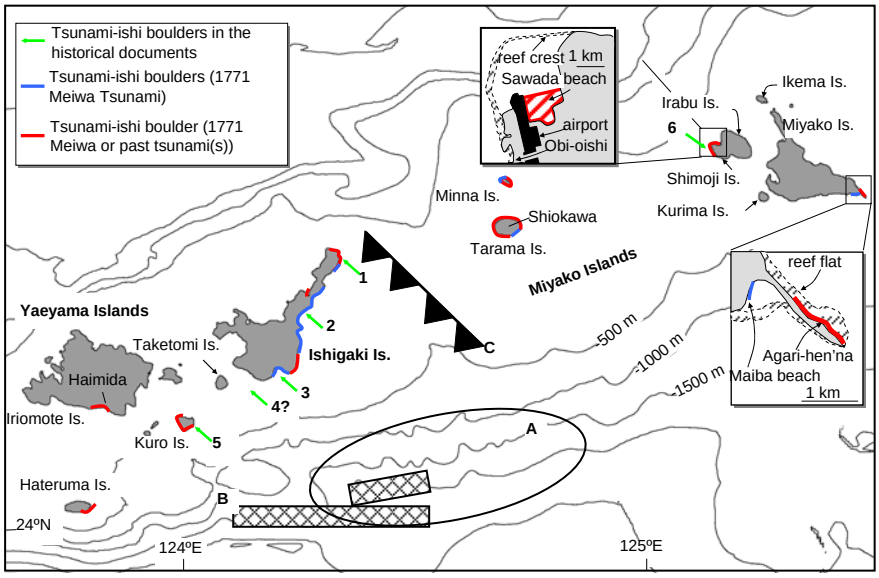
## 2010年の成果：津波石の堆積学的認定基準の確立



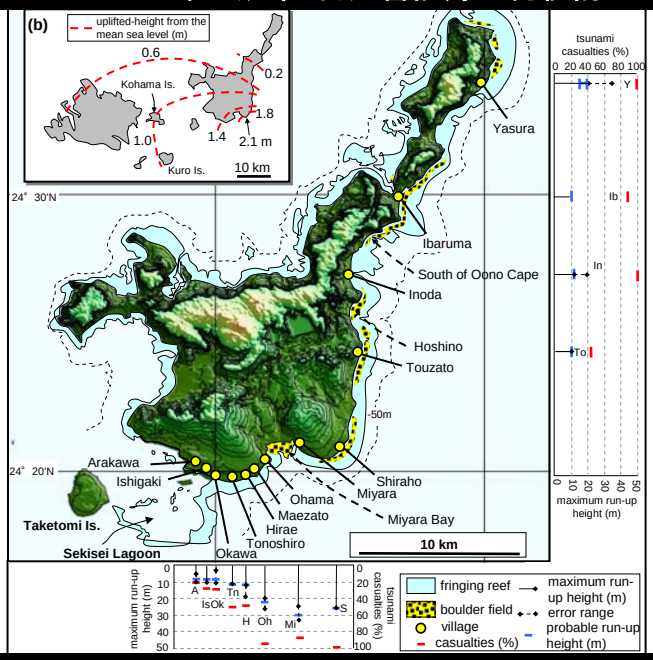

*Goto et al. (2010) Earth-Science Reviews*

## 2010年の成果：明和起源の津波石の広域分布



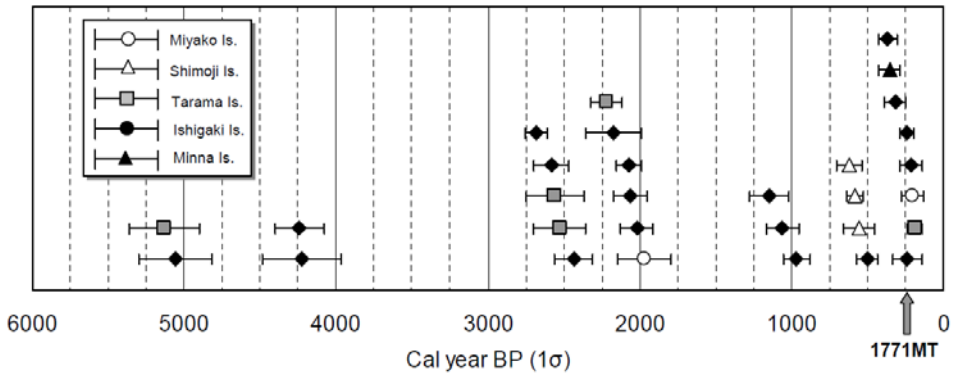

*Goto et al. (2010) Earth-Science Reviews*

## 2010年の成果：古文書記録の再検討




*Goto et al. (2010) Earth-Science Reviews*

## 2010年の成果：宮古ー八重山諸島での古津波




来年度240周年を迎えるにあたり，明和津波の本を共同執筆中．

*Goto et al. (2010) Earth-Science Reviews*

## 津波堆積物の保存状態に関する研究


津波堆積物は，地層中にどのように，どの程度保存されるのか？

2004年インド洋津波による堆積物の経年変化を，タイで調査.

*Goto et al. (submitted) Earth, Planets and Space*

## 先行研究（Kench et al., 2006, 2008）

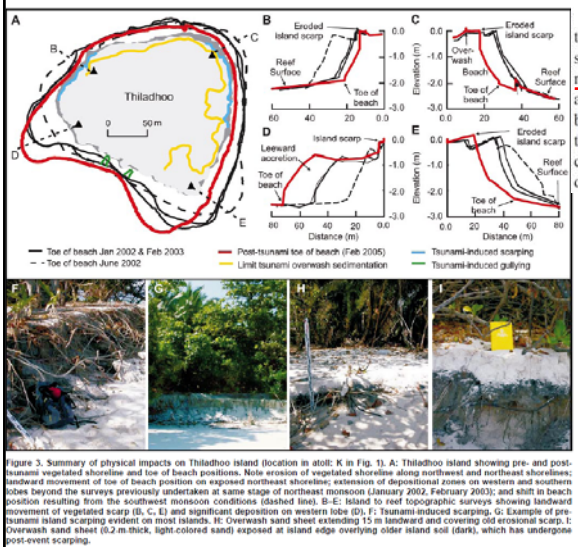
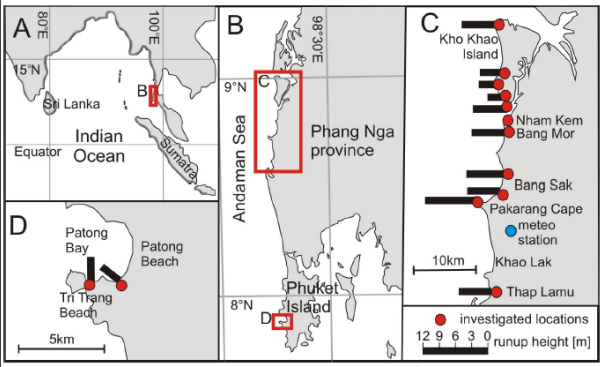



Figure 3. Summary of physical impacts on Thiladhoo island (location in atoll: K in Fig. 1). A: Thiladhoo island showing pre- and post-tsunami vegetated shoreline and toe of beach positions. Note erosion of vegetated shoreline along northwest and northeast shorelines; landward movement of toe of beach position on exposed northeast shoreline; extension of depositional zones on western and southern lobes beyond the surveys previously undertaken at same stage of northeast monsoon (January 2002, February 2003); and shift in beach position resulting from the southwest monsoon conditions (dashed line). B–E: Island to reef topographic surveys showing landward movement of vegetated scarp (B, C, E) and significant deposition on western lobe (D). F: Tsunami-induced scarping. G: Example of pre-tsunami island scarping evident on most islands. H: Overwash sand sheet extending 15 m landward and covering old erosional scarp. I: Overwash sand sheet (0.2 m thick, light-colored sand) exposed at island edge overlying older island soil (dark), which has undergone post-event scarping.

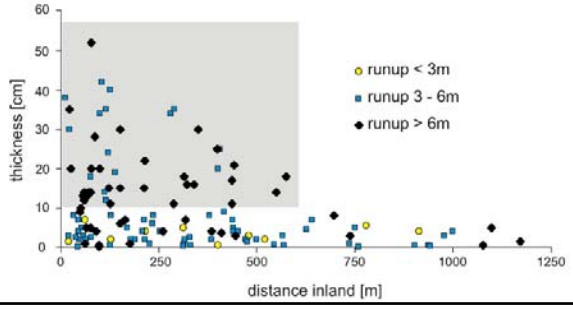
Furthermore, while overwash sedimentation represents a net addition to island building, the sand sheets and lobes are not likely to be preserved as recognizable tsunamite layers because: the sand sheets are very thin (average of 0.01 m); pedogenic processes and bioturbation are likely to vertically mix the sediments; and, the sand sheets will be difficult to recognize owing to their composition of homogenous medium-sands with no distinct bedding.

## 先行研究（Szczucinski, in press）



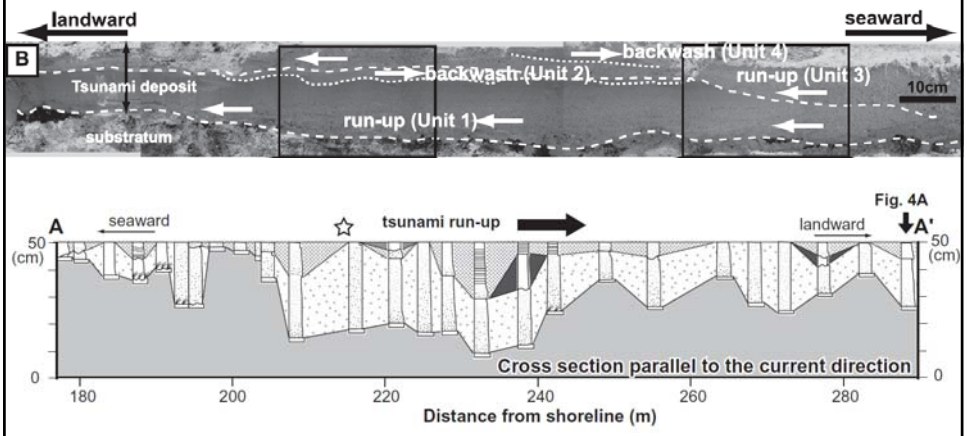

The tsunami deposits were preserved after four years in only half of the studied sites. In about 30% of the sites, the tsunami deposits were not preserved due to human activity; in a further 20% of the sites, the thin tsunami deposits were eroded or not recognized due to new soil formation.

it was avoided to dig a pit in the same place as before because the tsunami deposits layer was already disturbed during the previous digging and covering with ground.

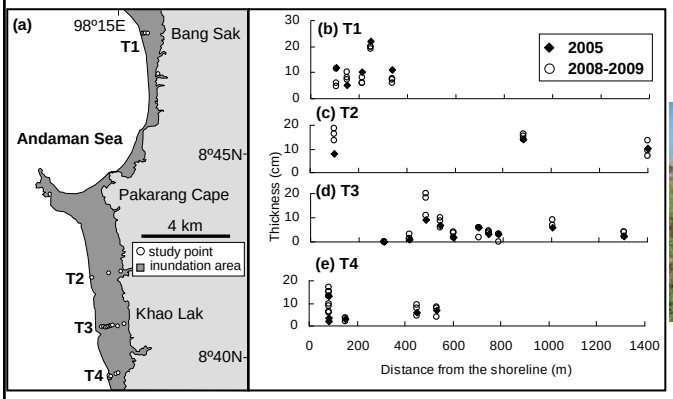



## 層厚の局所変化の問題

Naruse et al. (2010)



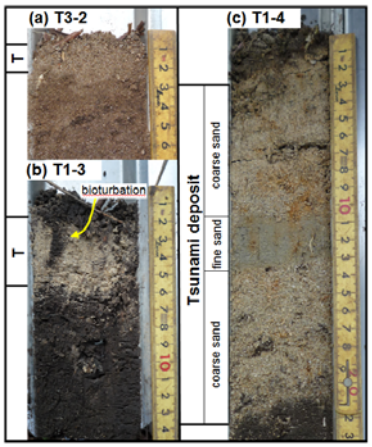
## 我々の研究

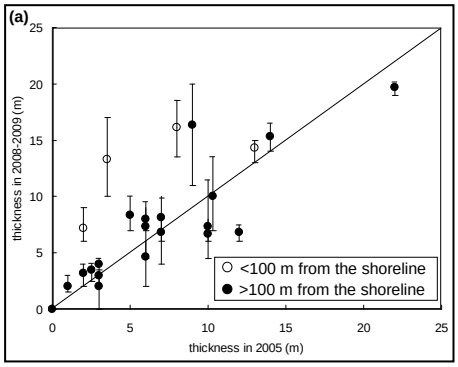



2005年の調査地点（4測線，24地点）について，2008-2009年に津波堆積物の再調査．ただし，同一地点の調査ができないため，局所的な層厚変化が問題となる．そこで，各地点で10mの範囲内で3点調べ，局所的な層厚変化と，年変化を比較．

*Goto et al. (submitted) Earth, Planets and Space*

## 我々の研究




2005年と2008年の調査結果を比較すると･･･

- 24地点のうち，13地点は層厚の局所変化のバラつき内の差．
- 7地点は，局所変化より大きいものの，その差は＜2cm程度．
- 3地点は，人的影響を受けている可能性あり．
- 明確に層厚が薄くなっているのは，わずか1地点のみ．

*Goto et al. (submitted) Earth, Planets and Space*